DCHC

DURHAM-CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION

Member Governments
Town of Carrboro
Town of Chapel Hill
County of Chatham
City of Durham
County of Durham
County of Orange
NC Department of Transportation
Town of Hillsborough

DURHAM – CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION TECHNICAL COORDINATING COMMITTEE (TCC)

AGENDA

July 22, 2009
9:00 a.m.

City Council Committee Room
2nd Floor Durham City Hall

1. **Preliminaries**

2. **Adjustments to the Agenda**

3. **Public Comments**

ACTION ITEMS

4. Approval of June 24, 2009 TCC Meeting Minutes
(Attachment 4)

A copy of the June 24, 2009 minutes is enclosed as Attachment 4.

TCC Action: Approve minutes of the June 24, 2009 TCC meeting.

5. TCC Bylaws
(Attachment 5, 5A)
Ellen Beckmann, LPA Staff
Fred Lamar, City of Durham, City Attorney's Office

The TCC bylaws (Attachment 5) include ambiguous language about voting privileges in Article V, Section 4. LPA staff sought an interpretation from the Durham City Attorney's Office in November 2008. This interpretation has been published in the TCC minutes for each meeting since November 2008, "According to the TCC Bylaws, when a member misses two meetings in a row, he/she is not considered a voting member on the second consecutive missed meeting. Voting privileges are reinstated on the second consecutive meeting that he/she attends." Upon further review, the Durham City Attorney's Office believes that the bylaws actually say that when a member misses one meeting, the member is not considered a voting member as of that missed meeting. Voting privileges are reinstated on the third consecutive meeting that he/she attends.

LPA staff recommends that the TCC amend the bylaws to change the language about voting membership. An attendance roster showing voting status for the 2009 TCC meetings is included as Attachment 5A. This was determined using the November 2008 interpretation of the bylaws.

TCC Action: Discuss revisions to the TCC bylaws. Schedule a vote for the August TCC meeting.

6. FY 2013-2017 Congestion Mitigation Air Quality (CMAQ) Call for Projects
(Attachment 6)
Ellen Beckmann, LPA Staff

In November 2008, the North Carolina Department of Transportation (NCDOT) announced a revised process for the selection of CMAQ projects. They also set schedules and deadlines for three CMAQ project selection processes. One of those processes was the selection of projects for FY 2013 through 2017 CMAQ funding for the FY 2011-2017 (now 2012-2018) Transportation Improvement Program (TIP). The NCDOT has requested that MPOs and RPOs submit a prioritized list of CMAQ project proposals by October 30, 2009. This list must be submitted via NCDOT's Strategic Planning Office of Transportation at the same time that the MPO submits its Regional Priority List. The MPO also must provide a proposed funding schedule for the CMAQ projects that approximately corresponds with the MPO's annual CMAQ target.

The DCHC MPO has approximately $10,101,845 of CMAQ funding available for FY 2013 through 2017. This corresponds with an annual CMAQ target of $2,020,369. In May, the TCC set a schedule for the FY 2013-2017 CMAQ Call for Projects. Applications were due by June 24, 2009. These applications were reviewed by the TCC TIP Subcommittee at two meetings on July 1, 2009 and July 13, 2009. Attachment 6 is a memo that includes the TCC TIP Subcommittee's recommendation.

TCC Action: Recommend that the TAC approve a prioritized list and funding schedule for CMAQ projects for FY 2013-2017.

7. American Recovery and Reinvestment Act of 2009 - Update
(Attachment 7, 7A, 7B, 7C to be handed out, 7D)
Ellen Beckmann, LPA Staff

President Obama signed the American Recovery and Reinvestment Act (ARRA) of 2009 on February 17, 2009. The legislation provides funding for transportation projects including highways, transit, rail, airports, enhancements, etc. The funding is up to 100 percent federal with no local match requirements. Attachment 7 is a memo on the American Recovery and Reinvestment Act of 2009. The funds are provided through existing funding programs such as Surface Transportation Program (STP), Surface Transportation Program Direct Attributable (STPDA), and the Section 5307 transit program.

In March, the DCHC MPO approved a resolution adopting an administrative modification to the 2009-2015 Metropolitan Transportation Improvement Program to include the first wave of STP ARRA projects. In April, the DCHC MPO approved a resolution adopting an administrative modification to the 2009-2015 Metropolitan Transportation Improvement Program to include the second wave of STP, STPDA, and Section 5307 ARRA projects.

Attachment 7A is a resolution adopting Amendment #7 to the FY 2009-2015 MTIP needed for two ARRA projects. Attachment 7B is a set of tables displaying projects that the TAC approved for the STP, STPDA, and Section 5307 ARRA funds. This table also includes the

implementation milestones that will be tracked for STPDA and Section 5307 ARRA projects. Attachment 7C is a resolution endorsing ARRA High Speed Rail applications (Attachment 7C will be handed out at the TCC meeting). Attachment 7D is a LPA staff memo on the parallel trail proposed for the high speed rail project.

TCC Action: Recommend that the TAC approve Attachment 7A, Resolution to Amend the FY 2009-2015 MTIP. Recommend that the TAC approve Attachment 7C, Resolution to Endorse NCDOT's High Speed Rail Application.

8. FY 2012-2018 Transportation Improvement Program – Regional Priority List (Attachment 8, 8A)
Ellen Beckmann, LPA Staff

The DCHC MPO approved its FY 2011-2017 Transportation Improvement Program (TIP) Regional Priority List on February 11, 2009. This list consisted of three separate top priority lists by county/division (Attachment 8). NCDOT recently announced a revised process for submitting MPO and RPO regional priority lists and held a workshop on June 17, 2009. The TIP is now going to be for fiscal years 2012 through 2018. The MPO will need to submit one MPO-wide list of its top 25 highway projects by October 30, 2009. NCDOT will use a quantitative ranking methodology to prioritize these projects. The MPO will also submit non-highway projects, but NCDOT has not yet developed a ranking methodology for these other modes. NCDOT will use the priority lists to develop the draft STIP which is scheduled to be released in September 2010.

The TCC TIP Subcommittee reviewed this request and provided LPA Staff a few options for how the MPO could create the MPO-wide top 25 highway list. Attachment 8A displays these options for TCC consideration.

Below is a schedule for this item. The MPO's lists should not include any projects that are on the 60-month let list which is scheduled to be released in August.

Action	Date
TCC update	6/24/09
TCC subcommittee meets to review projects and make a recommendation	7/1/09 7/13/09
TCC update	7/22/09
NC BOT releases 60-month let list	8/06/09
TCC develops recommendation	8/26/09
TAC reviews TCC recommendation	9/9/09
TCC responds to TAC requests (if needed)	9/23/09
TAC approves priority list	10/14/09
LPA submits projects to NCDOT through SPOT prioritization tool	10/05/09 – 10/30/09
NCDOT deadline for project proposals	10/30/09

TCC Action: Recommend that the TAC approve an MPO-wide top 25 highway project list for submission to NCDOT.

9. Comprehensive Transportation Plan
(Attachment 9)
Andy Henry, LPA Staff
Scott Walston, NCDOT Transportation Planning Branch

The LPA and an Orange County planning group have been meeting to coordinate the CTP efforts of the DCHC MPO and Orange County. Attachment 9 is a draft of the Task and Timeline for the MPO's CTP – this is the same draft presented at the June 24, 2009 TCC meeting. The LRTP-CTP subcommittee is to meet on July 21st to discuss the CTP and will provide Task and Timeline updates at the TCC meeting that might result from the subcommittee meeting.

TCC Action: Provide comments on CTP tasks and timeline, and make recommendation to the TAC.

10. Farrington Road Corridor Study
(Attachment 10, 10A)
Andy Henry, LPA Staff
Felix Nwoko, LPA Staff

The goal of the Farrington Road Corridor Study is to identify appropriate future transportation improvements in an area that has great growth potential but is currently rural in character and possesses much environmentally-sensitive land. The Study was conducted in 2007 and 2008, and the TAC received a preliminary Study presentation at their June 11, 2008 meeting that covered the issues, analysis, scenario planning and preliminary recommendations. The TAC received the presentation and referred the matter to staff. The Chatham County Board of Commissioners received a similar presentation on September 15, 2008.

The preliminary Farrington Road Corridor Study recommendations were incorporated into the draft 2035 Long Range Transportation Plan (2035 LRTP), however several TAC members asked that the road widenings in the rural and environmentally-sensitive areas be removed from the 2035 LRTP. The final 2035 LRTP notably included transportation system management solutions, such as intersection improvements and roundabouts, in lieu of the roadway widenings. Subsequently, the roadway widenings were removed from the draft Farrington Road Corridor Study (dated November 2008).

Although the TAC and staff are familiar with the Farrington Road Corridor Study and many of the Study's proposed recommendations have been incorporated into the 2035 LRTP, the TAC and local government elected bodies have not received the draft Study. Local elected bodies within the DCHC MPO planning area that might have an interest in receiving the draft Study would include:

- City of Durham;
- Durham Board of County Commissioners;
- Town of Chapel Hill;
- Orange County Board of County Commissioners; and,
- Chatham County Board of County Commissioners.

Attachment 10 is the draft Farrington Road Corridor Study. Staff believes the TAC and local governments will benefit not only from reviewing the recommended transportation improvements that are summarized in Figure 31 map (on page 95), but also from the land use scenario results summarized in Table 9 (on page 68). The scenario results describe the transportation impacts of implementing more compact or constrained land use development in the study area. Attachment 10A is previous version of the Figure 31 map displaying the preliminary Study recommendations.

TCC Action: Receive draft Farrington Road Corridor Study.

REPORTS FROM STAFF:

11. Reports from Staff
(Attachment 11)
Felix Nwoko, LPA Staff

TCC Action: Receive Report from staff

12. Report from the Chair
Mark Ahrendsen, TCC Chair

TCC Action: Receive Report from TCC Chair

13. NCDOT Report
(Attachment 13)
Wally Bowman, Division 5 – NCDOT
Mike Mills, Division 7 – NCDOT

INFORMATIONAL ITEMS

Adjourn

Next meeting: August 26, 2009

TECHNICAL COORDINATING COMMITTEE

June 24, 2009

MINUTES OF MEETING

The Technical Coordinating Committee met on June 24, 2009 at 9:00 a.m. in the Council Committee Room on the second floor of Durham City Hall. The following attended:

*Mark Ahrendsen	City of Durham/Transportation (TCC Chair)
*David Bonk	Town of Chapel Hill (TCC Vice-Chair)
*Bonnie Estes	Durham City/County Planning
*Andy Henry	City of Durham/Transportation
*John Hodges-Copple	Triangle J COG
*Joey Hopkins	NCDOT – Division 5 Engineer
*Ben Howell	Chatham County
*Tom King	Town of Hillsborough
*Karen Lincoln	Orange County
*Brian Litchfield	Town of Chapel Hill
*Ray Magyar	UNC – Transportation
*Patrick McDonough	Triangle Transit
*Kumar Neppalli	Town of Chapel Hill
*Felix Nwoko	City of Durham/Transportation
*Pierre Osei-Owusu	City of Durham/DATA
^Liz Rooks	Research Triangle Foundation
*Ed Venable	City of Durham-Engineering
^Scott Walston	NCDOT – TPB
^Roy Williford	Town of Carrboro
*Patrick Wilson	NCDOT – Division 7 Engineer
Cha'ssem Anderson	City of Durham/DATA
Ellen Beckmann	City of Durham/Transportation
Paul Black	Triangle J COG
Maricia Brown	City of Durham/Transportation
Leta Huntsinger	City of Durham/Transportation
Dale McKeel	City of Durham/Transportation
Ryan Mickles	Town of Chapel Hill
Dawn Qiu	City of Durham/Transportation
Brian Rhodes	City of Durham/Transportation
John D. White	Durham Chamber of Commerce

*Voting Member
^Temporary Non-voting Member
Quorum Count: 17 of 18 Voting Members Present

According to the TCC Bylaws, when a member misses two meetings in a row he/she is not considered a voting member on the second consecutive missed meeting. Voting privileges are reinstated on the second consecutive meeting that he/she attends.

Mark Ahrendsen, TCC Chair called the meeting to order at 9:02 a.m.

PRELIMINARIES:

Adjustments to the Agenda

Mark Ahrendsen stated handouts were distributed at the beginning of the meeting which will be discussed later in the meeting.

Public Comments

Pierre Osei-Owusu wants to discuss the flexing process for STPDA and CMAQ. Mark Ahrendsen stated it will be discussed later in the meeting.

ACTION ITEMS:

Approval of May 27, 2009 TCC Meeting Minutes

A motion was made by Liz Rooks and seconded by Pierre Osei-Owusu to approve the May 27, 2009 TCC Meeting Minutes. The motion carried unanimously.

American Recovery and Reinvestment Act of 2009 (Attachments 5 and 5A)

Ellen Beckmann provided an update on the American Recovery and Reinvestment Act of 2009, along with the attachments.

Ellen Beckmann stated that the TAC approved the TIP administrative modifications for the projects in April. There are two projects that will require additional amendments. All jurisdictions are to have their municipal agreements approved by their local board by July 1, 2009. All jurisdictions appear to be on track at this point for having the agreements approved.

A joint application was submitted for TIGGER funds and we are waiting to hear if the application was approved. Another funding source is the TIGER funding which we discussed at our last meeting. The TCC recommended holding off on endorsing the NCDOT recommendation until we know if the

MPO's member jurisdictions are also applying for the funding. The City of Durham is planning to submit an application for TIGER funds for the widening of Fayetteville Road between Woodcroft Parkway and Riddle Road. David Bonk stated that the Town of Chapel Hill probably won't apply for any of the funds. John Hodges-Copple stated it may not be strategic for the State to only have one application.

Ellen Beckmann stated the other source of funding that was mentioned was the high speed rail funding. At the RTA meeting, NCDOT rail staff discussed requesting support from the local jurisdictions for the State's application. Felix Nwoko stated that the AMPO reauthorization report focuses on high speed rail.

All the transit agencies have their applications in for funding and have met the deadline.

Joey Hopkins stated that Mike Stanley sent an email this week concerning utility adjustments with signal projects. If there is a utility adjustment, that is a right of way expense and it will have to be authorized as part of the stimulus process. If the local government expects to be reimbursed for utility adjustments, it needs to be programmed in the TIP. Kumar Neppalli stated that the Town of Chapel Hill has already started the adjustments. They are using another source of funds. Ellen Beckmann stated that Durham will not seek stimulus funding for any necessary utility adjustments.

Joey Hopkins stated they have opened bids on the Durham stimulus resurfacing projects. The bids are coming in about 25 percent low and the Secretary has the authority to award the contracts. We will see where we stand on additional resurfacing projects later this year.

Comprehensive Transportation Plan (CTP) (Attachment 6)

Andy Henry provided an update on the Comprehensive Transportation Plan (CTP), along with the attachment.

Andy Henry stated we have completed the LRTP and now need to do the CTP. The CTP does not have a fiscal element. Andy Henry gave an overview of the CTP schedule.

Scott Walston stated that CTPs use a design year, not necessarily build-out. Mr. Walston stated that everyone's adoption may take about four months.

Felix Nwoko suggested that the subcommittee meet to discuss the CTP and the coordination that will be needed with the local governments. David Bonk stated that the subcommittee needs to discuss coordination with Orange County regarding the CTP. There is concern over the survey that was provided at the Orange County meeting. There is a lot of concern about public overload of information with multiple plans and studies being developed simultaneously.

Felix Nwoko stated we don't need the same degree of public involvement for the CTP as we had for the LRTP. Karen Lincoln stated there is confusion to the public in regards to separating jurisdictional areas.

John Hodges-Copple asked if there was going to be any modeling. Andy Henry stated that is possible and DCHC staff will handle the modeling. ITRE will not be asked to model. John Hodges-Copple asked who will do the modeling in Orange County. Andy Henry stated that NCDOT will. John Hodges-Copple stated staff needs to coordinate with CAMPO. Andy Henry has already sent an email to CAMPO.

Ben Howell asked if Chatham County Board of County Commissioners will be expected to endorse the CTP for the MPO area in Chatham County. Andy Henry stated that the TAC will approve the CTP and it will only be for the area in the DCHC MPO. Mr. Howell stated the town of Cary has adopted their CTP and because part of Chatham County is in their CTP, they need to be involved. Scott Walston stated that the State only recognizes the State CTP. Cary's CTP is a local plan.

Andy Henry will set a July meeting to discuss the timeline.

2011-2017 Transportation Improvement Program – Regional Priority List (Attachments 7 and 7A)

Ellen Beckmann provided an introduction for the 2011-2017 Transportation Improvement Program – Regional Priority List, along with the attachments.

Ellen Beckmann attended a Workshop on June 17, 2009 hosted by the NCDOT Strategic Planning Office of Transportation regarding this item. She provided an overview of the attachments.

David Bonk is concerned that the State is given all the responsibility for project selection. Joey Hopkins went through the NCDOT process. Mr. Hopkins stated that the MPO and the State have to agree.

Patrick McDonough stated the process should be designed for MPOs since they have the majority of the population in the state. The process is not geared towards making priorities across modes. Joey Hopkins stated there is no requirement to fund projects based on population. Our basic requirement is the funding category in the equity formula. There is no basis on the part of NCDOT to take away any MPO decision-making. The MPO chooses where the DA funds go; but again we want the public to know the needs, what we hope to do, and then what we plan to do.

Paul Black stated the Triangle RPO is concerned about there being no bike/pedestrian project ranking. Andy Henry wants to provide some input regarding the bike/pedestrian ranking and Joey Hopkins stated they might still take input. Mark Ahrendsen stated a positive result may be that we will be able to see the impact of the equity formula on addressing the needs of the State.

Joey Hopkins described the scoring matrix in the presentation. Ellen Beckmann stated the TCC needs to pick which primary goal each project is going to address. John Hodges-Copple stated it would be helpful to build a tool so that all projects could be ranked on all the goals.

Felix Nwoko is concerned with the data, the mobility should consider peak v/c. We need consistency in use of data methodology. The process may show that State priorities are different than local priorities.

Ellen Beckmann stated that steps 4 and 5 where the fiscal constraint is applied are critical. NCDOT staff also wants input on what is multi-modal and how to address this issue by June 26, 2009.

Mark Ahrendsen stated TCC members should offer comments by Friday to Ellen Beckmann. David Bonk asked if this information should be given to the TAC and Mark Ahrendsen stated we could do that.

Ellen Beckmann stated we need a MPO-wide top 25 list of highway projects that needs to be submitted. Ellen Beckmann will set up a TIP subcommittee meeting to discuss this.

FY 2013-2017 Congestion Mitigation Air Quality Call for Projects (Attachment 8)

Ellen Beckmann provided an update on the FY 2013-2017 Congestion Mitigation Air Quality Call for Projects, along with the attachment.

The call for project proposals was opened last month and the deadline was set for today at the close of business. Ellen Beckmann will email the applications to everyone to review and be prepared to discuss at the subcommittee meeting. The TAC can approve the projects in September.

Pierre Osei-Owusu has concerns over the flexing of funds. Pierre stated we need to know the exact amount.

Ellen Beckmann set a subcommittee meeting for July 1, 2009 at 9 a.m. in the Transportation Conference Room. We will try to get a conference call set up for those that can't attend the meeting in person.

U-2803 Smith Level Road (Attachment 9 to be provided at the meeting)

Roy Williford with the Town of Carrboro spoke regarding U-2803 Smith Level Road. Mr. Williford stated that the Town rejected the NCDOT design. They endorsed the bike/pedestrian project with turn lanes as needed and sent it to NCDOT.

Scott Walston stated NCDOT has done forecasts and thinks a two-lane road will not meet the traffic needs. NCDOT is recommending the three options. Roy Williford stated the Town of Carrboro is not interested in any of the three options.

Felix Nwoko stated the core issue is what to do with the funds. Dale McKeel stated it is similar to the South Columbia Street project. David Bonk stated there was an agreement between the Town, MPO, and Board of Transportation member on what to do on South Columbia Street.

A motion was made by Kumar Neppalli and seconded by Felix Nwoko to recommend changing the scope of the project to match the Town of Carrboro's request and keep the funding in the TIP. Joey Hopkins is concerned with the motion as it stands. The funding may sit for ten years depending on the revision of the purpose and need statement. Patrick Wilson stated it is not going to address the congestion problem and the maintenance issue is not addressed. The motion carried with Patrick Wilson and Joey Hopkins opposing. Scott Walston is a non-voting member at this meeting and he opposed the motion as well.

REPORTS FROM STAFF:

Reports from Staff (Attachment 10)

Felix Nwoko stated there will be a kickoff meeting on the NC-54 project on July 16, 2009. The Reports from Staff is attached.

Report from the Chair

There was no Report from the Chair.

NCDOT Report (Attachment 12)

Joey Hopkins, NCDOT Division 5 Engineer, provided an update on projects. The Riddle Road and NC-55 project is advertising now. There are two resurfacing projects that are not stimulus projects being let in Durham; and one resurfacing project in Raleigh. The Davis Drive project is about 60% ahead of schedule. The US 15-501 project is slightly behind schedule.

Patrick Wilson, NCDOT Division 7 Engineer, provided an update on projects. Installing flashers at Bennett Road; Turkey Farm bridge is about 73 percent complete; Lawrence Road bridge is about 62% complete; and the Signal System is set for a September let date.

Adjournment

There being no further business before the Technical Coordinating Committee, the meeting was adjourned at 11:24 a.m.

BYLAWS

DURHAM – CHAPEL HILL – CARRBORO METROPOLITAN PLANNING ORGANIZATION TECHNICAL COORDINATING COMMITTEE

ARTICLE I – NAME

The name of this organization shall be the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Technical Coordinating Committee, hereinafter referred to as the "TCC".

ARTICLE II – PURPOSE

The purpose and goals of this committee shall be:

1. To provide general review, guidance and coordination of the continuing, cooperative, comprehensive multi-modal transportation process in the Durham-Chapel Hill-Carrboro Urban Area.

2. To prepare and make recommendations to the Transportation Advisory Committee (TAC) regarding matters relating to multi-modal transportation planning.

3. To facilitate coordination and communication between policy boards and agencies represented on the TAC and TCC.

4. To facilitate coordination of multi-modal transportation planning with other planning efforts such as those concerning land use, public utilities and maintenance of air quality.

ARTICLE III – MEMBERS

Section 1 – Number and Qualifications:

As specified in the Memorandum of Understanding dated September 10, 1993, the Technical Coordinating Committee shall include as voting members:

A.	The City of Durham	(5 representatives)
B.	The Town of Chapel Hill	(3 representatives)
C.	The Town of Carrboro	(2 representatives)
D.	The Town of Hillsborough	(1 representative)

E.	Durham County	(3 representatives)
F.	Orange County	(2 representatives)
G.	Chatham County	(1 representative)
H.	N. C. Department of Transportation	(5 representatives)
I.	Triangle "J" Council of Governments	(1 representative)
J.	Duke University	(1 representative)
K.	N. C. Central University	(1 representative)
L.	The University of North Carolina	(1 representative)
M.	The Raleigh-Durham Airport Authority	(1 representative)
N.	The Triangle Transit	(1 representative)
O.	The Research Triangle Park Foundation	(1 representative)
P.	Carolina Trailways	(1 representative)
	TOTAL	30 representatives

In addition to voting membership, the U.S. Department of Transportation shall have two (2) non-voting representatives.

Representatives and alternates will be designated by the chief executive officer of each represented agency. Designations will be made in writing and submitted to the Lead Planning Agency.

ARTICLE IV – OFFICERS

Section 1 – Officers Defined:

The TCC shall, upon majority vote of its membership, appoint one voting member of the Committee to act as Chair and one voting member to act as Vice-Chair.

Section 2 – Elections:

The Chair and Vice Chair shall be elected annually at the first regularly scheduled meeting of the calendar year. The newly elected Chair and Vice-Chair shall take office immediately upon being elected.

Section 3 – Terms of Office:

The term of office shall be one year. Officers may serve successive terms. Each officer shall hold office until his/her successor has been duly elected or until his/her earlier death, resignation, disqualification, incapacity to serve, or removal from the Committee by his/her chief executive officer.

Section 4 – Duties of Officers:

The Chair shall call and preside at meetings and appoint committees. The Chair shall appoint a clerk who will provide or otherwise delegate staff service for the TCC, as needed, and will be responsible for taking summary minutes of the Committee's proceedings. The Clerk will maintain a current copy of these Bylaws as an addendum to the Memorandum of Understanding, to be distributed to the public upon request.

In absence of the Chair, the Vice-Chair shall preside and complete all other duties of the Chair.

ARTICLE V – MEETINGS

Section 1 – Regular Meetings:

Meetings will be held on a regular meeting schedule approved by the Committee. Meeting notices and agendas are to be mailed in sufficient time for them to have been received by each committee member no later than three business days prior to the meeting. Unless otherwise stated, all meetings will begin at 9:00 A.M. Regular meetings may be canceled by the Chair should there be insufficient business on the Committee's tentative agenda.

Section 2 – Special Meetings:

Special meetings may be called by the Chair or at the request of the majority of the eligible voting members. At least seven (7) days notice shall be given.

Section 3 – Quorums:

A quorum shall be constituted by the presence of at least fifty percent (50%) of the eligible voting members.

Section 4 – Attendance:

Each member shall be expected to attend each regular meeting and each special meeting provided at least seven (7) days notice is provided.

A member may appoint an alternate to serve in his/her absence provided that: (1) the member informs the Clerk of the Committee prior to the meeting which the alternate will attend; and (2) the alternate is previously approved by the chief executive officer of the agency represented. This notification shall authorize the alternate to vote in the member's absence. Voting members (or their authorized alternates) not attending three (3) consecutive meetings will be considered non-voting members for the purpose of determining a quorum as of the third meeting. A member's or alternate's voting privileges will be reinstated automatically by his/her attendance at a later TCC meeting.

Section 5 – Agenda:

The agenda is a list of considerations for discussion at a meeting. Items on the agenda originate as a carryover from previous TCC meetings, or are placed on the agenda prior to its distribution by any member of the TCC, by request from any jurisdiction party to the Memorandum of Understanding, or by the request of a member of the Transportation Advisory Committee. Additional items may be placed on the regular agenda following discussion of the last item on the regular agenda, as long as a majority concurrence of the present and eligible voting members is received. Items may be placed on the agenda by citizens with majority concurrence of the eligible voting committee members present at any meeting.

Section 6 – Voting Procedures:

The Chair and any member may call for a vote on any issue, provided that it is seconded and within the purposes set forth in Article II and provided the issue is on the agenda as outlined in Section 5 of this article. Each voting member of the TCC shall have one vote. A majority vote of the members (or their authorized alternates) present and eligible to vote shall be sufficient for approval of matters coming before the Committee. The Chair is permitted to vote, however, non-voting members and unauthorized alternates are not permitted to vote. In the absence of any direction from these Bylaws, *Robert's Rules of Order* will designate procedures governing voting.

ARTICLE VI – AMENDMENTS TO BYLAWS

Amendments to these Bylaws of the TCC shall require the affirmative vote of at least two-thirds of the TCC's eligible voting members, provided that written notice of the proposed amendment has been received by each member at least seven (7) days prior to the meeting at which the amendment is to be considered and provided that such amendment does not conflict with the letter or fundamental intent of the Memorandum of Understanding governing this document. In the event of any conflict, the Memorandum of Understanding shall carry precedence over these Bylaws.

TCC ATTENDANCE RECORD - 2009

NAME	AGENCY	12/17	1/28	2/25	3/25	4/22	5/27	6/24	7/22	8/26	9/23	10/28	11/18
John Brantley	Airport Authority	A-	A-	A-	A-	A-	A-	A-					
Richard Carter	Greyhound	A-	A-	A-	A-	A-	A-	A-					
Roy Williford (a) Patricia McGuire	Carrboro Planning	A-	A-	A-	A-	A-	A-	P-					
Adena Messinger (a) Patricia McGuire	Carrboro Planning	P+	P+	P+	P+	P+	P+	A+					
Kumar Neppalli (a)Ryan Mickles	Chapel Hill Engineering	P+	P+	P+	P+	P+	P+	P+					
Brian Litchfield (a)Ryan Mickles	Chapel Hill Transit	P+	P+	P+	P+	P+	P+	P+					
David Bonk (a)Ryan Mickles	Chapel Hill Planning	P+	P+	P+	P+	P+	P+	P+					
Keith Megginson (a)Jason Sullivan (a)Ben Howell	Chatham County Planning	A-	A-	A-	P-	P+	P+	P+					
Ray Magyar (a) Claire Kane	UNC/Transportation	P+	A+	P+	P+	P+	A+	P+					
Mark Ahrendsen	City of Durham Transportation	P+	P+	P+	P+	P+	P+	P+					
Steve Mancuso (a) Pierre Osei-Owusu (a) Chassem Anderson	City of Durham DATA	A+	P+	P+	P+	P+	P+	P+					
Andy Henry (a) Ellen Beckmann (a) Dale McKeel	City of Durham Transportation	P+	P+	P+	P+	P+	P+	P+					
Felix Nwoko (a) Ellen Beckmann (a) Dale McKeel	City of Durham Transportation	P+	P+	P+	P+	P+	P+	P+					
Ed Venable (a) Vacant	City of Durham Engineering	P-	P+	P+	P+	P+	P+	P+					
Keith Luck (a) Aaron Cain	Durham City/County Planning	A-	A-	A-	A-	A-	A-	A-					
Bonnie Estes (a) Aaron Cain	Durham City/County Planning	A-	P-	A-	A-	A-	P-	P+					
Tobin Freid	Durham City/County	A-	P-	P+	P+	A+	A-	A-					
Tom King (a) Margaret Hauth	Hillsborough Planning	P+	P+	P+	P+	P+	A+	P+					
Starla Huggins	NCCU	A-	A-	A-	A-	A-	A-	A-					
TE-III Triangle Group, Durham Coordinator (vacant) (a) Triangle Planning Group Supervisor (Walston) (a) Eastern Planning Unit Head (Marshall)	NCDOT TPB	A+	A-	A-	A-	P-	A-	P-					
Division Engineer (Bowman) (a) Deputy Division Engineer (Hopkins) (a) Division Operations Engineer (Whitley) (a) Division Project Manager (Kneis)	NCDOT Division 5	P+	P+	P+	P+	P+	P+	P+					
Division Engineer (Mills) (a) Deputy Division Engineer (vacant) (a) Division Operations Engineer (Wilson) (a) Division Project Manager (Hunsinger) (a) Division Construction Engineer (Eason) (a) Division Staff Engineer (Buff)	NCDOT Division 7	P+	A+	A-	P-	P+	P+	P+					
Mobility Development Specialist, Triangle (Barlow) (a) Assistant Director for Mobility Development (Lavender)	NCDOT PTD	A-	A-	A-	P-	A-	A-	A-					
Regional Traffic Engineer (Becker) (a) Regional Traffic Safety Engineer (Phipps)	NCDOT Traffic Operations	A-	A-	A-	A-	A-	A-	A-					
Karen Lincoln	Orange County Planning	P+	P+	P+	A+	P+	P+	P+					
Karen Markovicks	Orange County Planning	A-	A-	A-	P-	A-	A-	A-					
Liz Rooks (a) Alison Fiori	Research Triangle Foundation	A-	P-	P+	P+	A+	A-	P-					
John Hodges-Copple (a) Pat Strong	Triangle J COG	P+	P+	P+	P+	P+	P+	P+					
Patrick McDonough (a) Jonathan Parker	Triangle Transit	P+	P+	P+	P+	P+	P+	P+					
Phail Wynn	Duke University	A-	A-	A-	A-	A-	A-	A-					
# P+ / # voting members		14/16	14/16	17/17	16/17	17/19	15/17	17/18					

Not confirmed in writing

P+ = present and counted as a voting member; P- = present and not counted as a voting member; A+ = absent and counted as a voting member; A- = absent and not counted as a voting member
Voting member rule: When a member misses two meetings in a row, he/she is not considered a voting member on the second consecutive missed meeting. Voting privileges are reinstated on the second consecutive meeting that he/she attends.

Memorandum

To: Technical Coordinating Committee

From: DCHC MPO Lead Planning Agency

Date: July 22, 2009

Subject: FY 2013-2017 Congestion Mitigation Air Quality (CMAQ) Call for Projects

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In November 2008, the North Carolina Department of Transportation (NCDOT) announced a revised process for the selection of CMAQ projects. They also set schedules and deadlines for three CMAQ project selection processes. One of those processes was the selection of projects for FY 2013 through 2017 CMAQ funding for the FY 2012-2018 Transportation Improvement Program (TIP). The NCDOT has requested that MPOs and RPOs submit a prioritized list of CMAQ project proposals by October 30, 2009. This list must be submitted via NCDOT's Strategic Planning Office of Transportation at the same time that the MPO submits its Regional Priority List. The MPO also must provide a proposed funding schedule for the CMAQ projects that best fits the MPO's annual CMAQ target.

The DCHC MPO has approximately $10,101,845 of CMAQ funding available for FY 2013 through 2017. This corresponds with an annual CMAQ target of $2,020,369. In May, the TCC set a schedule for the FY 2013-2017 CMAQ Call for Projects. Applications were due by June 24, 2009. These applications were reviewed by the TCC TIP Subcommittee at two meetings on July 1, 2009 and July 13, 2009.

Background Information

The calculation of emission reductions is required in the CMAQ application. The TIP Subcommittee reviewed these calculations to ensure that the calculations were done consistently. However, due to different sources for emission factors, it should be noted that there is some variance in the accuracy of some of the calculations. The table below summarizes the emission factors and sources used for all applications for the urban local and urban collector streets. The highlighted cells indicate figures that do not seem to be accurate. However, more accurate figures were not able to be found.

		LDGV	HDDBT	Hybrid 40'	Hybrid 60'	Clean Diesel 40'	HDGV2B	Hybrid LTV
Urban collector	VOC	0.446	0.223	0	0.27	0.09		
Urban local	VOC	0.443					0.599	0.163
Source:		Mobile6	Mobile6	FTA	manufacturer	FTA	Mobile6	manufacturer

		LDGV	HDDBT	Hybrid 40'	Hybrid 60'	Clean Diesel 40'	HDGV2B	Hybrid LTV
Urban collector	NOX	0.335	7.678	4.41	6.9	4.31		
Urban local	NOX	0.335					1.821	0.283
Source:		Mobile6	Mobile6	FTA	manufacturer	FTA	Mobile6	manufacturer

		LDGV	HDDBT	Hybrid 40'	Hybrid 60'	Clean Diesel 40'	HDGV2B	Hybrid LTV
Urban collector	CO	9.583	1.561	1.05	0.03	1.561		
Urban local	CO	9.650					6.995	2.793
Source:		Mobile6	Mobile6	Environment Canada	manufacturer	Mobile6	Mobile6	manufacturer

The DCHC MPO has not traditionally used a formula to decide how CMAQ funding should be distributed geographically in the MPO. Funding decisions have been made based on the technical merits of the project and general determinations of regional equity. NCDOT uses a formula to determine how much CMAQ funding each MPO and RPO receives based on the population and a pollutant factor.

MPO/RPO	County	Non Attainment Area Population (2000 Census)[2]	Pollutant Factors 8-hr Ozone Basic (1.0) 8-hr Ozone Moderate (1.1) $PM_{2.5}$ (1.2) Ozone + CO (1.2 x O_3 Factor)	Factored Population	% Factored Population	Yearly Target	2011-2017 Total CMAQ Target (2013 - 2017)
Durham-Chapel Hill-Carrboro MPO				371,764	8.42%	$2,020,369	$10,101,843
	Chatham[F]	*10,337*	*1.0*	*10,337*			
	Durham	*223,314*	*1.2*	*267,977*			
	Orange	*93,450*	*1.0*	*93,450*			

If the MPO chose to distribute funding according to this formula, it would result in the following:

County	Factored Population Percentage	FY 2013-2017 CMAQ Target
Chatham	2.78%	$280,831
Durham	72.08%	$7,281,408
Orange	25.14%	$2,539,603

TIP Subcommittee Recommendation

Fourteen CMAQ applications were submitted for a total of $15,050,118. These applications were reviewed by the TIP subcommittee on July 1, 2009. Detailed instructions were provided to each applicant on necessary revisions to the applications. Revised applications were reviewed again at a TIP subcommittee on July 13, 2009. A few minor additional revisions were requested for a few of the applications at this meeting. The most revised applications are available for download on the City of Durham's FTP site.

The subcommittee recommends prioritizing CMAQ projects according to the cost-benefit ratio as defined as the federal share of the total cost divided by the sum of the annual emission reductions for VOC, NOx, and CO. The year of funding should also correspond to this priority order. This recommendation is shown on the attached Table 1.

As an alternative to strictly following the cost-benefit ratios, the TCC is also submitting Table 2 as an option. This alternative provides the Town of Cary half of its requested amount for the New Hope Church Road American Tobacco Trail Park and Ride Lot. The remaining funding would be provided to the Town of Hillsborough for its Riverwalk, Phase II project.

Schedule

Action	Date
TCC opens call for projects	5/27/09
TAC update	6/10/09
Project proposals are due to DCHC MPO	6/24/09
Applications are emailed to TCC for review	6/25/09
TCC subcommittee meets to review projects and make a recommendation	7/1/09, 9am
Revised applications dues to DCHC MPO	7/8/2009
Revised applications are emailed to TCC for review	7/9/2009
TCC subcommittee meeting	7/13/09, 1:30pm
TCC recommendation for funding	7/22/09
TAC reviews project proposals	8/12/09
TCC responds to TAC requests (if needed)	8/26/09
TAC approves project proposals	9/9/09
LPA submits projects to NCDOT through SPOT prioritization tool	10/05/09 – 10/30/09
NCDOT deadline for project proposals	10/30/09

Table 1. TCC TIP Subcommittee Recommendation for DCHC MPO CMAQ FY 2013-2017 Project Applications

Rank	Applicant	Project	FY 2013 Funding Request	FY 2014 Funding Request	FY 2015 Funding Request	FY 2016 Funding Request	FY 2017 Funding Request	unfunded	Total	Subcommittee Recommendation	Annual Emissions Reductions	Cost/annual total kg reduction	Cost/annual CO kg reduction	Cost/annual VOC kg reduction	Cost/annual Nox kg reduction
1	TJ COG	Triangle Transportation Demand Management Program	implementa $ 382,929	implementa $ 385,275	implementa $ 457,502	implementa $ 505,402	implementa $ 522,555		implemental $ 2,253,663	$ 2,253,663	CO 105,763 VOC 4,286 NOx 3,549	$ 20	$ 21	$ 526	$ 635
2	DATA	Operating Assistance for New Fixed Route	operating $ 951,100	operating $ 998,655					operating $ 1,949,756	$ 1,949,756	CO 17,618 VOC 829 NOx (126)	$ 106	$ 111	$ 2,352	$ (15,474)
3	Cary	New Hope Church Road (ATT) Trailhead Park and Ride Lot	capital $ 445,000						capital $ 445,000	$ 445,000	CO 3,673 VOC 167 NOx 138	$ 112	$ 121	$ 2,665	$ 3,225
4	Chapel Hill	MLK Jr. Blvd. Shared Pathway (0.7 miles)		capital $ 724,620					capital $ 724,620	$ 724,620	CO 4,533 VOC 211 NOx 158	$ 148	$ 160	$ 3,434	$ 4,586
5	Durham	Sidewalks on Campus Walk Avenue and Lasalle Street (0.92 miles)			capital $ 269,842				capital $ 269,842	$ 269,842	CO 1,082 VOC 50 NOx 38	$ 231	$ 249	$ 5,397	$ 7,101
6	Chapel Hill	Estes Dr. Bicycle and Pedestrian Improvements (0.65 miles)			capital $ 945,762				capital $ 945,762	$ 945,762	CO 2,639 VOC 123 NOx 92	$ 331	$ 358	$ 7,689	$ 10,280
7	DATA	Replacement of Five Cutaway Vans with Hybrid Electric Vans			capital $ 583,443				capital $ 583,443	$ 583,443	CO 789 VOC 82 NOx 289	$ 503	$ 739	$ 7,115	$ 2,019
8	Carrboro	Jones Creek Greenway to Twin Creeks/Morris Grove Elementary				capital $ 230,400	capital $ 9,600		capital $ 240,000	$ 240,000	CO 321 VOC 14 NOx 11	$ 694	$ 747	$ 17,304	$ 21,918
9	Durham	Sidewalks and Bike Lanes on Hope Valley Road (1.14 miles)				capital $ 1,108,542			capital $ 1,108,542	$ 1,108,542	CO 1,022 VOC 48 NOx 36	$ 1,002	$ 1,085	$ 23,095	$ 30,793
10	Durham	Sidewalks on Cameron Avenue (1.66 miles)					capital $ 777,924		capital $ 777,924	$ 777,924	CO 601 VOC 28 NOx 21	$ 1,197	$ 1,294	$ 27,783	$ 37,044
11	Durham	Sidewalks on Alston Avenue (1.4 miles)					capital $ 803,293	$ 120,472	capital $ 923,765	$ 803,293	CO 661 VOC 31 NOx 23	$ 1,292	$ 1,398	$ 29,799	$ 40,164
12	DATA	Replacement of Five Diesel Buses with Hybrid Electric Buses						capital $ 2,674,114	capital $ 2,674,114	$ -	CO 218 VOC 95 NOx 1,392	$ 1,568	$ 12,267	$ 28,149	$ 1,921
13	Chapel Hill	Replacement of Two 40' Deisel Buses with Hybrid 60' Buses						capital $ 1,653,088	capital $ 1,653,088	$ -	CO 105 VOC (0) NOx 133	$ 6,948	$ 15,744	$ (27,290,028)	$ 12,429
14	Hillsborough	Riverwalk, Phase II						capital $ 500,600	capital $ 500,600	$ -	CO 30 VOC 1 NOx 1	$ 15,644	$ 16,687	$ 500,600	$ 500,600
			total $ 1,779,029	total $ 2,108,550	total $ 2,256,549	total $ 1,844,344	total $ 2,113,372	total $ 4,948,274	total $ 15,050,118	$ 10,101,845					
			available $ 2,020,369	available $ 2,020,369	available $ 2,020,369	available $ 2,020,369	available $ 2,020,369		available $ 10,101,845	$ 10,101,845					
			difference $ 241,340	difference $ (88,181)	difference $ (236,180)	difference $ 176,025	difference $ (93,003)		difference $ (4,948,273)	$ 0					

Durham	$ 5,492,800	70%
Orange	$ 1,910,382	24%
Chatham	$ 445,000	6%
Regional	$ 2,253,663	

Table 2. Alternative for DCHC MPO CMAQ FY 2013-2017 Project Applications

Rank	Applicant	Project	FY 2013 Funding Request	FY 2014 Funding Request	FY 2015 Funding Request	FY 2016 Funding Request	FY 2017 Funding Request	unfunded	Total	Subcommittee Recommendation	Annual Emissions Reductions (kg/year)	Cost/annual total kg reduction	Cost/annual CO kg reduction	Cost/annual VOC kg reduction	Cost/annual Nox kg reduction
1	TJ COG	Triangle Transportation Demand Management Program	implementa $ 382,929	implementa $ 385,275	implementa $ 457,502	implementa $ 505,402	implementa $ 522,555		implemental $ 2,253,663	$ 2,253,663	CO 105,763 VOC 4,286 NOx 3,549	$ 20	$ 21	$ 526	$ 635
2	DATA	Operating Assistance for New Fixed Route	operating $ 951,100	operating $ 998,655					operating $ 1,949,756	$ 1,949,756	CO 17,618 VOC 829 NOx (126)	$ 106	$ 111	$ 2,352	$ (15,474)
3	Cary	New Hope Church Road (ATT) Trailhead Park and Ride Lot	capital $ 222,500					$ 222,500	capital $ 445,000	$ 222,500	CO 3,673 VOC 167 NOx 138	$ 112	$ 121	$ 2,665	$ 3,225
4	Chapel Hill	MLK Jr. Blvd. Shared Pathway (0.7 miles)	capital $ 724,620						capital $ 724,620	$ 724,620	CO 4,533 VOC 211 NOx 158	$ 148	$ 160	$ 3,434	$ 4,586
5	Durham	Sidewalks on Campus Walk Avenue and Lasalle Street (0.92 miles)		capital $ 269,842					capital $ 269,842	$ 269,842	CO 1,082 VOC 50 NOx 38	$ 231	$ 249	$ 5,397	$ 7,101
6	Chapel Hill	Estes Dr. Bicycle and Pedestrian Improvements (0.65 miles)			capital $ 945,762				capital $ 945,762	$ 945,762	CO 2,639 VOC 123 NOx 92	$ 331	$ 358	$ 7,689	$ 10,280
7	DATA	Replacement of Five Cutaway Vans with Hybrid Electric Vans			capital $ 583,443				capital $ 583,443	$ 583,443	CO 789 VOC 82 NOx 289	$ 503	$ 739	$ 7,115	$ 2,019
8	Carrboro	Jones Creek Greenway to Twin Creeks/Morris Grove Elementary				capital $ 230,400	capital $ 9,600		capital $ 240,000	$ 240,000	CO 321 VOC 14 NOx 11	$ 694	$ 747	$ 17,304	$ 21,918
9	Durham	Sidewalks and Bike Lanes on Hope Valley Road (1.14 miles)				capital $ 1,108,542			capital $ 1,108,542	$ 1,108,542	CO 1,022 VOC 48 NOx 36	$ 1,002	$ 1,085	$ 23,095	$ 30,793
10	Durham	Sidewalks on Cameron Avenue (1.66 miles)					capital $ 777,924		capital $ 777,924	$ 777,924	CO 601 VOC 28 NOx 21	$ 1,197	$ 1,294	$ 27,783	$ 37,044
11	Durham	Sidewalks on Alston Avenue (1.4 miles)					capital $ 803,293	$ 120,472	capital $ 923,765	$ 803,293	CO 661 VOC 31 NOx 23	$ 1,292	$ 1,398	$ 29,799	$ 40,164
12	DATA	Replacement of Five Diesel Buses with Hybrid Electric Buses						capital $ 2,674,114	capital $ 2,674,114	$ -	CO 218 VOC 95 NOx 1,392	$ 1,568	$ 12,267	$ 28,149	$ 1,921
13	Chapel Hill	Replacement of Two 40' Deisel Buses with Hybrid 60' Buses						capital $ 1,653,088	capital $ 1,653,088	$ -	CO 105 VOC (0) NOx 133	$ 6,948	$ 15,744	$ (27,290,028)	$ 12,429
14	Hillsborough	Riverwalk, Phase II					capital $ 222,500	capital $ 278,100	capital $ 500,600	$ 222,500	CO 30 VOC 1 NOx 1	$ 15,644	$ 16,687	$ 500,600	$ 500,600
			total $ 2,281,149	total $ 1,653,772	total $ 1,986,707	total $ 1,844,344	total $ 2,335,872	total $ 4,948,274	total $ 15,050,118	$ 10,101,845					
			available $ 2,020,369	available $ 2,020,369	available $ 2,020,369	available $ 2,020,369	available $ 2,020,369		available $ 10,101,845	$ 10,101,845					
			difference $ (260,780)	difference $ 366,597	difference $ 33,662	difference $ 176,025	difference $ (315,503)		difference $ (4,948,273)	$ 0					

Durham	$ 5,492,800	70%
Orange	$ 2,132,882	27%
Chatham	$ 222,500	3%
Regional	$ 2,253,663	

MEMORANDUM

TO: Technical Coordinating Committee
DCHC MPO

FROM: DCHC MPO Lead Planning Agency

DATE: July 22, 2009

SUBJECT: American Recovery and Reinvestment Act of 2009

President Obama signed the American Recovery and Reinvestment Act (ARRA) of 2009 on February 17, 2009. The legislation provides funding for transportation projects including highways, transit, rail, airports, enhancements, etc. The transportation funds are being distributed through the agencies within the U.S. Department of Transportation.

TIP Administrative Modifications and Amendments

The TAC approved FY 2009-2015 Metropolitan Transportation Improvement Program (MTIP) Administrative Modification #3 on March 11, 2009 and Administrative Modification #5 on April 8, 2009. These two modifications added the first and second waves of ARRA funded projects to the TIP. These projects were funded using the ARRA funding provided through the Surface Transportation Program, Surface Transportation Program Direct Allocation, and Section 5307/5340 transit program. The State Board of Transportation has approved similar STIP modifications.

It is necessary for the MPO to approve another MTIP Amendment so that the MTIP accurately displays funding for two of the MPO's ARRA projects. SF-4908I, installation of a traffic signal and left-turn lanes at NC 751 and O'Kelly Chapel Road in Chatham County, must be moved from FY 2008 to FY 2009. B-5191, bridge expansion joint repairs in Orange County, must be added to the MTIP. Attachment 7A is FY 2009-2015 MTIP Amendment #7.

ARRA STP, STPDA, and 5307 Projects

On April 17, 2009 and June 10, 2009, Governor Beverly Perdue made announcements of confirmed ARRA-funded highway and transit projects. The Governor is only announcing projects when they are fully certified (meaning they are in the MTIP/STIP, right-of-way is certified, design is complete, etc.) so several of the MPO's approved projects were not included in this announcement. These projects will be announced once they have been fully certified. The table of ARRA funded projects is included at Attachment 7B. The first page lists the ARRA STP projects that have both been confirmed by the Governor and are in the MTIP/STIP. The second page lists the ARRA STP projects that have been requested by the MPO and are not yet confirmed by the Governor. NCDOT is funding several of these projects, and LPA staff expects them to be confirmed soon. The following pages list the STPDA, Section 5307, and contingency projects.

ARRA TIGGER Funding

The Federal Transit Administration is administering a $100 million discretionary grant program called Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) through the ARRA. The DCHC MPO's transit operators developed a joint application for these funds described in the following table. The minimum grant award is $2 million and the deadline for applying was May 22, 2009. If a grant is approved, the DCHC MPO will need to amend the MTIP to include these projects. FTA reported that it received requests for $1.87 billion through the TIGGER program, and only $100 million is available.

Operator	Description	Unit Cost	Total Cost
DATA	5 hybrid electric gasoline light transit vehicles	$120,000 each	$600,000
CHT	6 40' hybrid electric buses	$543,600 each	$3,261,600
CHT	5 hybrid electric gasoline support vehicles	$29,500 each	$147,500
TTA	3 propane light transit vehicles	$96,000 each	$288,000
TTA	1 propane truck	$45,500 each	$45,500
		TOTAL	$4,342,600

ARRA TIGER Funding

The Federal Highway Administration is administering a $1.5 billion discretionary grant program called Transportation Investments Generating Economic Recovery (TIGER) through the ARRA. Eligible applicants include both state and local governments. Eligible projects include capital investments in: (1) highway or bridge projects; (2) public transportation projects; (3) passenger and freight rail transportation projects; and (4) port infrastructure investments, including projects that connect ports to other modes of transportation and improve the efficiency of freight movement. The grants can range from $20 million to $300 million. However, FHWA will consider waiving the minimum grant size requirement. A maximum of 20 percent of the funding, or $300 million, can go to projects in any one state. The deadline is September 15, 2009. Unlike other ARRA funding sources, these TIGER grants are not subject to North Carolina's equity formula for distribution of transportation funding.

ARRA High Speed Rail Funding

The Federal Rail Administration is administering a $8 billion discretionary grant program to provide capital assistance for high speed rail corridors and intercity passenger rail corridors. The NCDOT is planning to submit grant applications for the southeast high speed rail corridor from Charlotte through the Triad, Triangle, and north to Richmond, VA and Washington D.C. The section from Richmond to Raleigh has a completed tier II environmental impact statement for a project that would provide a fully-grade separated track that can accommodate trains up to 110 miles per hour. A parallel multi-use trail is also being studied for this section. The section from Raleigh to Charlotte follows the North Carolina Railroad corridor and would include a stop at the current Durham station. Attachment 7C is a resolution of support for NCDOT's funding request. Attachment 7D is a LPA staff memo on the parallel trail proposed for the high speed rail project.

Implementation and Tracking of Projects

The NCDOT will be managing the ARRA STP projects, local governments will be implementing the ARRA STPDA projects, and transit agencies will be implementing the ARRA Section 5307/5340 projects. The DCHC MPO will be closely monitoring and tracking the implementation of the STPDA and Section 5307/5340 projects.

The following steps will need to be taken to implement projects. All of these steps do not apply to every project. Some of these steps are already completed for many projects.

July 1, 2009 (local approval)	Step 1 – Agreement Preparation and Execution
	Step 2 – Preliminary Engineering Authorization
	Step 3 – Scoping Meeting
	Step 4 – Procuring Professional Services
	Step 5 – Environmental Documentation
	Step 6 – Design
	Step 7 – Right-Of-Way Certification
	Step 7a – Right-Of-Way Acquisition
September 1, 2009	**Submit all documentation to NCDOT**
October 1, 2009	Step 8 – Construction Authorization
January 1, 2010	Step 9 – Procuring Construction Services
	Step 9a – Force Account
	Step 10 – Construction Administration
	Step 11 – Close Out
	Step 12 – Final Audit

The MPO's deadline for local approval of agreements for STPDA projects was July 1, 2009. All local agencies have reported to the MPO that their municipal agreements have been approved by their elected boards.

The table of ARRA funded includes implementation milestones. All local governments expect to complete many of the implementation milestones this summer.

Schedule

Action	Date
TCC discuss process for ARRA funding TCC recommendation for MTIP administrative modification for first wave of stimulus projects	February 25, 2009
TCC subcommittee meetings and meetings with NCDOT staff on potential projects	February-March
TAC discuss process for ARRA funding TAC approval of MTIP administrative modification #3 for first wave of stimulus projects TAC approval of Section 5307/5340 funding split.	March 11, 2009
TCC recommendation for Section 5307/5340 projects. TCC recommendation for STPDA projects. TCC recommendation for 2009-2015 MTIP administrative modification #5 for second wave of stimulus projects, STPDA projects, and Section 5307/5340 projects (and contingency projects).	March 25, 2009

Action	Date
TAC approval of 2009-2015 MTIP administrative modification #5. TAC approval of transfer of STPDA funds to FTA (if needed).	April 8, 2009
ARRA TIGGER applications due	May 22, 2009
50% of STP funds must be obligated	**June 30, 2009**
Applications for Section 5307/5340 grants must be submitted **Agreements for STPDA projects must be approved by local governments**	**July 1, 2009**
TCC update on project status. TCC recommendation for contingency projects (if needed).	July 22, 2009
TAC action on contingency projects (if needed).	August 12, 2009
50% of Section 5307/5340 funds must be obligated	**September 1, 2009**
Local governments submit STPDA project information to NCDOT	September 1, 2009
Final opportunity for TAC action on contingency projects (if needed).	September 9, 2009
ARRA TIGER applications due	September 15, 2009
Highway/Bicycle/Pedestrian projects – construction authorization	**October 1, 2009**
Transit projects - grant awarded in FTA system **Highway/Bicycle/Pedestrian projects – project let**	**January 1, 2010**
100% of all STP and STPDA funds must be obligated	**March 2, 2010**
100% of all Section 5307/5340 funds must be obligated	**March 5, 2010**
Unobligated funds are redistributed to states	March 2010

TCC Action: Recommend that the TAC:

- Approve Attachment 7A, Resolution to Amend the FY 2009-2015 MTIP
- Approve Attachment 7C, Resolution to Endorse NCDOT's High Speed Rail Application

RESOLUTION TO MODIFY THE
2009-2015 TRANSPORTATION IMPROVEMENT PROGRAM
FOR THE DURHAM-CHAPEL HILL-CARRBORO URBAN AREA

AMENDMENT #7
August 12, 2009

A motion was made by TAC Member _____and seconded by TAC Member _____ for the adoption of the following resolution, and upon being put to a vote, was duly adopted.

WHEREAS, the Metropolitan Transportation Improvement Program (MTIP) is a staged multiple year listing of all federally funded transportation projects scheduled for implementation within the Durham-Chapel Hill-Carrboro Urban Area which have been selected from a priority list of projects; and

WHEREAS, the document provides the mechanism for official endorsement of the program of projects by the Transportation Advisory Committee (TAC); and

WHEREAS, the inclusion of the TIP in the transportation planning process was first mandated by regulations issued jointly by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) and no project within the planning area will be approved for funding by these federal agencies unless it appears in the officially adopted TIP; and

WHEREAS, the procedures for developing the MTIP have been modified in accordance with certain provisions of the SAFETEA-LU Federal Transportation Act and guidance provided by the State; and

WHEREAS, projects listed in the MTIP are also included in the State TIP (STIP) and balanced against anticipated revenues as identified in the STIP; and

WHEREAS, the North Carolina Department of Transportation and the Transportation Advisory Committee have determined it to be in the best interest of the Urban Area to amend the FY 2009-2015 Metropolitan Transportation Improvement Program as described in the attached sheet; and

WHEREAS, there has been no change in the MTIP project schedule or project design concept and scope with regard to the air quality conformity finding made by the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Transportation Advisory Committee on August 13, 2008; and

WHEREAS, the DCHC MPO certifies that this MTIP amendment is consistent with the intent of the DCHC MPO 2035 LRTP; and

WHEREAS, exempt projects as identified in 40 CFR part 93 can be funded with Economic Recovery Funds and are too small to warrant inclusion in the LRTP, but are by this resolution being included in as part of this TIP amendment; and

BE IT THEREFORE RESOLVED that the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Transportation Advisory Committee hereby amends the FY 2009-2015 Metropolitan Transportation Improvement Program of the Durham-Chapel Hill-Carrboro Urban Area, as approved by the TAC on August 13, 2008, and as described in the "Attachment to Resolution for Amendment #7 to DCHC 2009-2015 MTIP" provided here on this, the 12th day of August, 2009.

_____
TAC Chair

STATE of: North Carolina
COUNTY of: _____

I,_____ , a Notary Public of Durham County, North Carolina do hereby certify that personally J. Michael Woodard appeared before me on the 12th day of August, 2009, to affix his signature to the foregoing document.

_____
Notary Public
(Seal) My commission expires_____

DCHC MPO 2009-2015 MTIP Amendment #7 - August 12, 2009

TABLE 1

Amend

I. D. No.	County	Location/ Description	Funding		FY 2009
SF-4908I	Chatham	NC 751 and SR 1731 (O'Kelly Chapel Road) Install signal and left-turn lanes	ARRA (STP)	C	486
			TOTAL		486

TABLE 2

Add

I. D. No.	County	Location/ Description	Funding		FY 2009
B-5191	Orange	Bridge expansion joint repairs	ARRA (STP)	C	160
			TOTAL		160

American Recovery and Reinvestment Act
Confirmed STP - Funded - Managed by NCDOT

TIP #	Location	Description	Confirmed By Governor, STIP Status	Construction Authorization	Procuring Construction Services	Total ARRA STP	Other Funding	Total Project Funds
		DIVISION 5						
I-5116	Durham Wake - I-540	I-40 to US 70 (4.00 miles) Mill, Resurface	Confirmed 2/09, STIP 3/09	Complete	5/29/2009	$2,569,522		$2,569,522
U-5122	Durham - NC 98	SR 1838 (Junction Road) to SR 1811 (Sherron Road) (3.80 miles) Mill, Resurface	Confirmed 2/09, STIP 3/09	Complete	6/16/2009	$1,500,000		$1,500,000
R-5135	Durham - SR 1004 (Old Oxford Road)	US 501 Business (N. Roxboro Street) to Granville County Line (10.10 miles) Mill, Resurface	Confirmed 2/09, STIP 3/09	Complete	6/16/2009	$2,450,000		$2,450,000
U-5127	Durham - SR 1321 (Hilldandale/Fulton)	I-85 to SR 1320 (Erwin Road) (1.32 miles) Mill, Resurface	Confirmed 2/09, STIP 4/09	Complete	6/16/2009	$350,000		$350,000
U-5124	Durham - SR 1978 (Old Page Road)	SR 1926 (Angier Avenue) to SR 2095 (Page Road Extension) (0.99 miles) Mill, Resurface	Confirmed 2/09, STIP 4/09	Complete	6/16/2009	$150,000		$150,000
U-5126	Durham - US 501 Bypass (Duke Street)	SR 1443 (Horton Road) to Hudson Street (1.90 miles) Mill, Resurface	Confirmed 2/09, STIP 4/09	Complete	6/16/2009	$900,000		$900,000
R-2000AF	Durham - I-540 and I-40	Interchange improvements	Confirmed 4/09, in STIP			$5,700,000		$5,700,000
		Total				$13,619,522		
		DIVISION 7						
U-4704	Chapel Hill Durham Orange	Signal System Upgrade	Confirmed 4/09, in STIP			$5,250,000		$5,250,000
U-3100B	Carrboro	SR 1107 (Old Fayetteville Road), NC 54 to SR 1106 (Stroud Lane), Provide bicycle and pedestrian facilities, and transit accommodations	Confirmed 4/09, STIP 5/09			$1,800,000		$1,800,000
R-5178	Orange - NC 57	NC 86 to SR 1544 (Pearson Road) Widen 2-foot paved shoulders and resurface	Confirmed 5/09			$2,000,000		$2,000,000
		Total				$9,050,000		
		DIVISION 8						
SF-4908I	Chatham - NC 751 and SR 1731 (O'Kelly Chapel Road)	Install signal and left-turn lanes	Confirmed 4/09, in STIP			$486,000		$486,000
		Total				$486,000		

American Recovery and Reinvestment Act
STP Request Table - Unfunded - Managed by NCDOT

TIP #	Location	Description	Confirmed By Governor, STIP Status	Construction Authorization **10/1/2009**	Procuring Construction Services **1/1/2010**	Total ARRA STP	Other Funding	Total Project Funds
		DIVISION 5						
U-5142	Durham	Installation of LED Traffic Signals on the City-maintained system (cost proposed to be shared by the State and City)	$805,000 in 5/09 STIP addition			$676,544	$128,866	$805,410
U-5143	Durham - NC 55 and SR 1171 (Riddle Road)	Installation of turn lanes	$310,000 in 5/09 STIP addition			$310,000		$310,000
U-5164	Durham	Resurfacing, multiple locations	$3,000,000 in 5/09 STIP addition			$7,097,000		$7,097,000
U-5146	Durham	Traffic signal upgrades on the City-maintained system (cost proposed to be shared by the State and City)	$350,000 in 5/09 STIP addition			$304,950	$179,918	$484,868
X-XXXX	Durham - SR 1670 (Geer Street) and SR 1357 (Avondale Drive)	Installation of roundabout				$570,000		$570,000
U-5147	Durham	ITS - installation of cameras at 11 locations	$275,000 in 5/09 STIP addition			$275,000		$275,000
		Total				$9,233,494		
		DIVISION 7						
X-XXXX	Chapel Hill	Improvements to South Columbia St between Cameron Ave and Franklin St (NC 86 Route)				$250,000		$250,000
U-4726	Chapel Hill	Install ADA Ramps to conform to the revised ADA standards				$150,000		$150,000
X-XXXX	Chapel Hill	Replace deteriorated curb/gutter at several locations on State roads; Franklin St, Raleigh Rd, South Rd, NC 86				$100,000		$100,000
X-XXXX	Chapel Hill	Bus stop and street improvements on Raleigh Rd (NC 54), South Rd, and Pittsboro St (NC 86)				$82,000		$82,000
X-XXXX	Orange	Resurfacing, multiple locations				$2,935,000		$2,935,000
B-5191	Orange	Bridge expansion joint repairs	$160,000 in 5/09 STIP addition			$160,000		$160,000
		Total				$3,677,000		
		DIVISION 8						
		Total				$0		

American Recovery and Reinvestment Act
STP Request Table - Unfunded - Managed by NCDOT

Durham Resurfacing List

TIP #	Location	Description	Confirmed In STIP	Construction Authorization **10/1/2009**	Procuring Construction Services **1/1/2010**	Total Federal	Other Funding	Total Project Funds
	US 15-501 Business South (Mangum Street)	Milling and Resurfacing, Lakewood to Roxboro				$480,000		
	US 15-501 Business North (Roxboro Street)	Milling and Resurfacing, Lakewood to I-85				$560,000		
	SR 1127 (West Chapel Hill Street)	Milling and Resurfacing, Great Jones to Kent				$160,000		
	US 15-501 Business (Lakewood Ave / University Drive)	Milling and Resurfacing, Roxboro to Academy				$550,000		
	NC 55 (Avondale Drive)	Resurfacing, I-85 to Geer Street				$150,000		
	US 70 Business (Main Street)	Milling and Resurfacing, Erwin/9th Street to Morgan St.				$215,000		
	SR 2028 (T.W. Alexander Drive)	Milling and Resurfacing, NC 54 to Cornwallis Rd				$235,000		
	SR 2295 (Archdale / S. Roxboro)	Milling and Resurfacing. MLK Jr Parkway to Summit St.				$310,000		
	SR 1959 (South Miami Blvd.)	Milling and Resurfacing. NC 54 to Cornwallis Rd.				$623,000		
	SR 1404 (Rose of Sharon Rd.)	Milling and Resurfacing. Cole Mill Rd. to Guess Rd.				$380,000		
	SR 1615 (Quail Roost Rd.)	Milling and Resurfacing. Bahama Rd. to US 501				$372,000		
	SR 1815 (Stagville Rd.)	Milling and Resurfacing. Old Oxford Hwy. to Bahama Rd.				$567,000		
	SR 1928 (Angier Ave.)	Milling and Resurfacing. Pleasant Dr. to US 70				$545,000		
	SR 1118 (Fayetteville Rd.)	Milling and Resurfacing. NC 751 to Herndon Rd.				$419,000		
	SR 1407 (Carver St.)	Milling and Resurfacing. Rose of Sharon Rd. to N. Roxboro St.				$516,000		
	SR 1380 (Morgan St.)	Milling and Resurfacing. Mangum St. to Foster St.				$60,000		
	NC 98 (Holloway St.)	Milling and Resurfacing. Miami Blvd. to N. Roxboro St.				$280,000		
	SR 1670 (Geer St.)	Milling and Resurfacing. Mangum St. to Cheek Rd.				$175,000		
	SR 1945 (Alston Ave.)	Milling and Resurfacing. NC 55 to Cornwallis Rd.				$500,000		
						$7,097,000		

Orange Resurfacing List

TIP #	Location	Description	Confirmed In STIP	Construction Authorization **10/1/2009**	Procuring Construction Services **1/1/2010**	Total Federal	Other Funding	Total Project Funds
	Orange	Resurfacing NC 86 (US 70 Business to Whitfield Road)				$2,393,000		$2,393,000
	Orange	Resurfacing NC 86 (US 70 Bypass to Coleman Loop)				$542,000		$542,000
						$2,935,000		

American Recovery and Reinvestment Act
STPDA Table - Funded - Managed Locally

TIP #	Location	Description	1. Agreement Approved Locally **7/1/2009**	1. Agreement Executed by NCDOT	2. Preliminary Engineering Authorization	3. Scoping Meeting	4. Procuring Professional Services	5. Environmental Documentation	6. Design	7. Right-of-Way Certification	8. Construction Authorization **10/1/2009**	9. Procuring Construction Services **1/1/2010**	Total ARRA STPDA	Other Funding	Total Project Funds
		TOTAL AVAILABLE	Type date that step was completed or n/a										$ 7,889,430		
		CITY OF DURHAM											$4,309,579		
U-4726HB	NC 751 (Hope Valley Road)	Sidewalk Construction (NC 54 to Swarthmore)	6/15/2009		n/a		n/a						$77,274		$77,274
U-4726HC	SR 1116 (Garrett Road)	Sidewalk Construction (NC 751 to Swarthmore)	6/15/2009		n/a		n/a						$438,840		$438,840
U-4726HA	SR 1666 (Dearborn Drive)	Sidewalk Construction (Old Oxford to Ruth)	6/15/2009		n/a		n/a						$388,755		$388,755
U-4726HD	SR 1321 (Hillandale Road E/S)	Sidewalk Construction (Cammie to Peppertree)	6/15/2009		n/a		n/a						$500,000		$500,000
U-4726HE	US 70 Bus (Hillsborough Rd S/S) and Markham Street	Sidewalk Construction (15-501 Bypass to Broad Street)	6/15/2009		n/a		n/a						$477,500		$477,500
U-4726HF	Washington St W/S	Sidewalk Construction (Trinity to Glendale)	6/15/2009		n/a		n/a						$345,000		$345,000
U-4726HG	SR 1183 (University Drive N/S)	Sidewalk Construction (Chapel Hill Rd to Chapel Hill Rd)	6/15/2009		n/a		n/a						$505,000		$505,000
U-5142	Durham	Installation of LED Traffic Signals on the City-maintained system (cost proposed to be shared by the State and City) - Managed by NCDOT	n/a		n/a		n/a						$128,866	$676,544	$805,410
U-5146	Durham	Traffic signal upgrades on the City-maintained system (cost proposed to be shared by the State and City)	6/15/2009		n/a		n/a						$179,918		$179,918
U-5148	Durham - Northpointe Drive	Installation of traffic signal	6/15/2009		n/a		n/a						$200,000		$200,000
U-5149A	Durham - Renaissance Parkway	Installation of traffic signal	6/15/2009		n/a		n/a						$200,000		$200,000
U-5150	Durham - William Penn and Ben Franklin	Installation of traffic signal	6/15/2009		n/a		n/a						$200,000		$200,000
U-5151	Durham - Miami Blvd. and Geer St.	Intersection reconstruction	6/15/2009		n/a		n/a						$80,000		$80,000
ER-5100EX	Durham	Duke, Gregson, Rockwood, MLK Urban Forestry and Landscaping	6/15/2009		n/a		n/a						$75,900		$75,900
U-4726HK	Durham - American Tobacco Trail	Resurfacing from Morehead to Southpoint Crossing	6/15/2009		n/a		n/a						$228,450		$228,450
U-5149B	Durham - Renaissance Pkwy	Installation of a traffic signal at American Tobacco Trail crossing	6/15/2009		n/a		n/a						$100,000		$100,000
U-4726HI	Durham - North-South Trail	Resurfacing the North-South Greenway Trail from Lavender to Murray	6/15/2009		n/a		n/a						$128,847		$128,847
U-4726HJ	Durham - American Tobacco Trail	Resurfacing Riddle Road Spur	6/15/2009		n/a		n/a						$55,230		$55,230
		City of Durham Uncommitted Balance											*($0)*		

American Recovery and Reinvestment Act
STPDA Table - Funded - Managed Locally

TIP #	Location	Description	1. Agreement Approved Locally **7/1/2009**	1. Agreement Executed by NCDOT	2. Preliminary Engineering Authorization	3. Scoping Meeting	4. Procuring Professional Services	5. Environmental Documentation	6. Design	7. Right-of-Way Certification	8. Construction Authorization **10/1/2009**	9. Procuring Construction Services **1/1/2010**	Total ARRA STPDA	Other Funding	Total Project Funds
		TOWN OF CHAPEL HILL											$1,171,563		
U-4726	NC 86	Martin Luther King Jr. Blvd: Pedestrian Safety Improvements	6/22/2009										$350,000		$350,000
U-4704	Signal System	Installation of bicycle detection loops as part of the Signal System Upgrade Project.	6/22/2009		n/a		n/a						$175,000		$175,000
U-4726	Chapel Hill	ADA Ramps at selected locations	6/22/2009		n/a		n/a						$50,000		$50,000
U-4726	Chapel Hill	Raised Crosswalks/traffic calming	6/22/2009		n/a		n/a						$50,000		$50,000
U-4726	US 15-501, NC 54	Sidewalk Construction: Fordham Blvd, Manning Dr. to Old Mason Farm	6/22/2009		n/a		n/a						$185,000		$185,000
EL-4601	Chapel Hill	Morgan Creek Greenway, Phase I	6/22/2009		4/10/2003			5/6/2009					$300,000		$300,000
U-4726	Chapel Hill	Installation of in-street pedestrian lighting @ three locations	6/22/2009		n/a		n/a						$61,563		$61,563
		Town of Chapel Hill Uncommitted Balance											*($0)*		
		TOWN OF CARRBORO											$403,596		
U-4726	Ashe Street	Sidewalk on one side from Weaver Street to Shelton	6/16/2009	7/2/2009	n/a		n/a						$155,200		$155,200
U-4726	Bim Street	Sidewalk on one side from Jones Ferry to Fidelity	6/16/2009	7/2/2009	n/a		n/a						$200,100		$200,100
EL-5103	Carrboro	Bus shelter and shelter materials	6/16/2009	7/14/2009									$48,296		$48,296
		Town of Carrboro Uncommitted Balance											*($0)*		
		TOWN OF HILLSBOROUGH											$319,459		
U-4726	Hillsborough	Nash Street Sidewalk			n/a		n/a						$319,459	$880,541	$1,200,000
		Town of Hillsborough Uncommitted Balance											*$0*		

American Recovery and Reinvestment Act
STPDA Table - Funded - Managed Locally

TIP #	Location	Description	1. Agreement Approved Locally **7/1/2009**	1. Agreement Executed by NCDOT	2. Preliminary Engineering Authorization	3. Scoping Meeting	4. Procuring Professional Services	5. Environmental Documentation	6. Design	7. Right-of-Way Certification	8. Construction Authorization **10/1/2009**	9. Procuring Construction Services **1/1/2010**	Total ARRA STPDA	Other Funding	Total Project Funds
		DURHAM COUNTY											$827,321		
U-4726	Durham - Third Fork Creek Trail	Third Fork Creek Trail from Woodcroft Parkway to Garrett Road; Third Fork Creek Trail from MLK to Southern Boundaries Park; Third Fork Creek Trail MLK connector	6/15/2009		n/a		n/a						$827,000		$827,000
		Durham County Uncommitted Balance											*$321*		
		ORANGE COUNTY											$612,657		
TA-5117	OPT	Two (2) 28' light transit vehicles w/wheelchair lift: 1 replacement; 1 expansion for CMAQ Project C-4932, service to start Sept. 2009	6/16/2009		n/a		n/a						$183,200		$183,200
U-4726	Carrboro-Orange County	Twin Creeks Park Greenway (linear park): 10' multiuse asphalt trail including bridge over Jones Creek	6/16/2009		n/a		n/a						$429,457	$470,543	$900,000
		Orange County Uncommitted Balance											*($0)*		
		CHATHAM COUNTY											$245,255		
U-4726	Chatham - US 15-501	Pedestrian Facilities on East and/or West side of US 15-501 in Cole Park area north to county line - using existing curb and gutter, serving existing commercial and UNC Park and Ride Lot	6/15/2009										$220,000		$220,000
U-4726	Chatham - US 15-501	Streetscaping/landscaping along US 15-501	6/15/2009										$25,255		$25,255
		Chatham County Uncommitted Balance											*$0*		
		Uncommitted Balance											$320		

American Recovery and Reinvestment Act
Section 5307/5340 Table - Funded - Managed by Transit Agencies

TIP #	Location	Description	Grant filed in TEAM **7/1/2009**	Grant approved	Total Federal	Other Funding	Total Project Funds
		TOTAL AVAILABLE			$ 8,377,719		
		DATA			$4,257,465		
TG-4738	Durham	FY 2009 Fixed Route Preventative Maintenance	5/19/2009	7/6/2009	$500,000		$500,000
TR-4931	Durham	FY 2009 Paratransit Preventative Maintenance	5/19/2009	7/6/2009	$500,000		$500,000
TG-4738	Durham	FY 2010 Fixed Route Preventative Maintenance	5/19/2009		$500,000		$500,000
TR-4931	Durham	FY 2010 Paratransit Preventative Maintenance	5/19/2009		$500,000		$500,000
TA-5019	Durham	15 Paratransit Replacement Vans	5/19/2009		$707,790		$707,790
TA-5108	Durham	9 Paratransit Expansion Vans	5/19/2009		$424,675		$424,675
TT-4911	Durham	Logistical Enhancement - Real Time Bus Arrival/AVL/GPS for all vehicles	5/19/2009		$600,000		$600,000
TG-4958	Durham	Passenger Amenities - 20 Bus Shelters, 20 Solar Lights, 20 Benches and Trashcans	5/19/2009		$230,000		$230,000
TG-4738	Durham	30 Bus Repaint@7,850k each	5/19/2009		$235,000		$235,000
TG-4958	Durham	1,200 Sq. ft Storage Shed for Passenger Amenities	5/19/2009		$60,000		$60,000
		DATA Uncommitted Balance			*$0*		
		CHT			$2,714,867		
TA-4748	Chapel Hill	8 Paratransit Replacement Vans	5/4/2009		$520,000		$520,000
TA-4726	Chapel Hill	2 Hybrid Replacement Buses	5/4/2009		$1,072,851		$1,072,851
TG-4731	Chapel Hill	FY 2009 Preventative Maintenance	5/4/2009		$500,000		$500,000
TG-4731	Chapel Hill	FY 2010 Preventative Maintenance	5/4/2009		$500,000		$500,000
TG-4732	Chapel Hill	1 Service Truck Replacement	5/4/2009		$45,000		$45,000
TT-5104	Chapel Hill	Computer Technology/Hardware	5/4/2009		$49,867		$49,867
TG-4731	Chapel Hill	Bus Stop Shelters, Lighting & other Enhancements	5/4/2009		$27,149		$27,149
		CHT Uncommitted Balance			*$0*		
		TRIANGLE TRANSIT			$1,405,387		
TA-4993	Triangle Transit	Paratransit fleet expansion	5/29/2009		$75,000	$75,000	$150,000
TT-4911	Triangle Transit	ITS Project - Real Time Passenger Information Project	5/29/2009		$398,467	$212,432	$610,899
TA-4818	Triangle Transit	Replacement Buses	5/29/2009		$917,500	$917,500	$1,835,000
TG-4821	Triangle Transit	Passenger Amenities	5/29/2009		$14,420	$13,390	$27,810
		TT Uncommitted Balance			*$0*		
		Uncommitted Balance			$0		

American Recovery and Reinvestment Act
Contingency Projects Table - Unfunded

TIP #	Location	Description	Grant filed in TEAM **7/1/2009**	Grant approved	Total Federal	Other Funding	Total Project Funds
		TOTAL AVAILABLE					
		DATA					
TA-4923	Durham	4 Hybrid Replacement Buses			$2,200,000		$2,200,000
		DATA Projects			*$2,200,000*		
		CHT					
T-XXXX	Chapel Hil	Radio System Study and Upgrade			$500,000		$500,000
TA-4748	Chapel Hil	2 Paratransit Replacement Vehicles			$130,000		$130,000
TG-4732	Chapel Hil	15 Replacement Support Vehicles			$396,000		$396,000
TA-4726	Chapel Hil	6 Replacement 40' HB Diesel Buses			$3,300,000		$3,300,000
T-XXXX	Chapel Hil	Bus Storage Expansion			$1,500,000		$1,500,000
		CHT Projects			*$5,826,000*		
		TRIANGLE TRANSIT					
TT-4911	Triangle Transit	ITS Project - Real Time Passenger Information			$44,551	$44,551	$89,101
TA-4818	Triangle Transit	Replacement Buses			$1,972,500	$1,972,500	$3,945,000
TG-4821	Triangle Transit	Passenger Amenities			$1,083,314	$1,083,314	$2,166,628
		TT Projects			*$3,100,365*		
		Total			$11,126,365		

TIP #	Location	Description	1. Agreement Executed Locally **7/1/2009**	1. Agreement Executed by NCDOT	2. Preliminary Engineering Authorization	3. Scoping Meeting	4. Procuring Professional Services	5. Environmental Documentation	6. Design	7. Right-of-Way Certification	8. Construction Authorization **10/1/2009**	9. Procuring Construction Services **1/1/2010**	Total Federal	Other Funding	Total Project Funds
U-4726	Carrboro - Pine Street	Sidewalk on one side from Greensboro to Hillsborough											$232,500		$232,500
U-4726	Carrboro - Davie Road	Sidewalk on one side from Fidelity to Main											$264,500		$264,500
U-4726	Chapel Hill - Ephesus Church Road	Sidewalk Construction											$58,000		$58,000
X-XXXX	Durham - Renaissance Pkwy	Installation of a traffic signal (flasher) at Leonardo											$30,000		$30,000
U-4726	American Tobacco Trail	Construction of trailhead parking lot at Scott King Road											$200,000		$200,000
U-4726	Durham Markham Ave. N/S	Sidewalk Construction (Washington to Avondale)											$275,000		$275,000
X-XXXX	Durham	Painting of RR bridge underpasses on Chapel Hill Street and Roxboro Street											$200,000		$200,000
U-4726	Durham	Easy to Construct Sidewalks Along DATA Routes											$600,000		$600,000
		Total											$ 1,860,000		

Memorandum

To: DCHC MPO Transportation Coordinating Committee (TCC)
From: Dale McKeel, Bicycle and Pedestrian Coordinator
Date: July 8, 2009
Subject: Trail Alongside High-Speed Rail Route – Raleigh to Charlotte

At its June 24 meeting, the TCC discussed the plans for including a parallel bicycle/pedestrian trail alongside the Southeast High Speed Rail (SEHSR) corridor between Petersburg and Raleigh. TCC members asked if there has been consideration of including a trail alongside the section of the SEHSR between Raleigh and Charlotte.

I contacted David Foster in NCDOT's Rail Division. His response was as follows:

> Because we are doing an EIS from Petersburg to Raleigh, we had captured environmental field data outside of our actual right of way needs for SEHSR, thus we were able to offer the resource agencies that we would use that data to evaluate a trail concept running parallel to SEHSR in a separate ROW, if they would provide us a conceptual "footprint" design or pay for someone to do that conceptual design . . . they provided the funds to do the conceptual design and to incorporate that into our environmental document.
>
> The corridor from Raleigh to Charlotte does not require an overall EIS because we have current freight and passenger service, and the current actions we are planning all have independent utility (i.e., they need to happen whether or not HSR ever happens), so each action has its own appropriate environmental document, and thus we do not have the same context to consider a trail concept.

Please let me know if you have questions or need additional information.

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 5 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	C-5102 Transportation Demand Management	MPO-wide		CMAQ, O, STP	$17,000,000
2	Intelligent Transportation System Improvements • Triangle Transit – Real Time Passenger Information - $700,000 • Additional projects will be determined during the ITS Strategic Deployment Plan Update.	MPO-wide		Highway and Public Transit Sources	Total cost TBD by study
3	U-0071 East End Connector (NC 147 to US 70) new highway facility	D, DC	2.9	T, Highway Sources	$161,792,000
4	2011 Transit Projects • Preventative maintenance and routine capital items o Triangle Transit - $7,000,000 o DATA - $3,500,000 • Replacement buses o Triangle Transit – 28 buses - $8,900,000 • Replacement vans o Triangle Transit – 58 vanpool vans - $1,300,000 o Triangle Transit – 6 paratransit vans - $320,000 o DATA – 15 ADA vans - $570,000 • Service vehicles o DATA - 6 replacement service vehicles - $180,000 • Expansion service o Light Rail Service - Durham - Chapel Hill - alternatives analysis and preliminary engineering and design - $2,750,000 o Light Rail Service – Raleigh-RTP-Durham – alternatives analysis and preliminary engineering and design - $2,000,000 o Triangle Transit – 23 expansion buses - $9,100,000 o Triangle Transit – 80 vanpool vans - $1,700,000 o Triangle Transit – Planning Assistance - $7,000,000 o Triangle Transit – 9 paratransit vans - $357,000 o DATA – 8 40’ expansion buses - $5,760,000 o DATA – passenger amenities (30 shelters +100 benches) - $500,000	D, TT		STP, CMAQ, Public Transit Sources	$50,937,000
5	Fayetteville Rd. (Cornwallis Rd. to Nelson) bike lanes and sidewalks	D, DC	1.1	STP, CMAQ, SRTS, State Highway Sources	$356,000
6	Avondale Dr. (Roxboro Rd. to Geer St.) bike lanes and sidewalks	D, DC	1.1	STP, CMAQ, State Highway Sources	$515,000
7	U-3804 Hillandale Rd. (I-85 to Carver St.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.6	Highway Sources	$11,191,000

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 5 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
8	U-3308 Alston Ave. (NC 147 to NC 98) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.9	Highway Sources	$25,916,000
9	Fayetteville Rd. (Woodcroft Pkwy. To Riddle Rd.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	2.4	Highway Sources	$21,100,000
10	NC 54 (I-40 east to NC 55) widen to multi-lane divided with bus rapid transit, bike lanes, and sidewalks	D, DC	5.3	Highway Sources	$91,500,000
11	Ephesus Church Road (US 15-501 to Farrington Road) bike lanes, sidewalks, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
12	University Dr. (Garrett Rd. to Hope Valley Rd.) bike lanes and sidewalks	D, DC	2.9	STP, CMAQ, State Highway Sources	$1,025,000
13	Fayetteville Rd. (Cornwallis Rd. to NC 147) streetscape design	D	2.2	STP, CMAQ, State Highway Sources	$30,000,000
14	Holloway St. (Miami Blvd. to US 70) sidewalk and wide outside lanes	D, DC	0.4	STP, CMAQ, State Highway Sources	$257,000
15	Hillandale Rd. (I-85 to NC 147) bike lanes and sidewalks	D, DC	0.9	STP, CMAQ, State Highway Sources	$1,320,000
16	2012 Transit Projects • Preventative maintenance and routine capital items o DATA - $3,850,000 • Service vehicles o DATA - 4 replacement service vehicles - $140,000 • Expansion service o DATA - 18 40' hybrid expansion buses - $13,500,000	D, TT		STP, CMAQ, Public Transit Sources	$17,490,000
17	U-4716 Hopson Rd./Church St. grade separation at RR, close Church St. RR crossing	D, DC	0.3	Highway and Rail Sources	$6,500,000
18	Club Blvd. (Ruffin St. to Geer St.) bike lanes and sidewalks	D, DC	3.5	STP, CMAQ, State Highway Sources	$2,978,000
19	Erwin Road (15-501 to NC 751) bike lanes, sidewalks, and safety improvements (design may vary along length)	CH, DC	1.1	STP, CMAQ, State Highway Sources	$5,527,000
20	Cheek Rd. (Geer St. to Hardee St.) sidewalks	D, DC	0.5	STP, CMAQ, State Highway Sources	$695,000
21	Dearborn Dr. (E. Club Blvd. to Old Oxford Rd.) bike lanes and sidewalks	D, DC	1.5	STP, CMAQ, State Highway Sources	$2,389,000

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 7 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	FY 2011 Transit Projects • Preventative maintenance and routine capital items o Triangle Transit - $7,000,000 o Chapel Hill Transit - $2,982,000 • Replacement buses o Triangle Transit – 28 buses - $8,900,000 o Chapel Hill Transit – 8 buses - $2,800,000 • Replacement vans o Triangle Transit – 58 vanpool vans - $1,300,000 o Triangle Transit – 6 paratransit vans - $320,000 o Chapel Hill Transit – 5 EZ-rider vans - $384,000 o Chapel Hill Transit – 7 Safe-Ride vans - $210,000 • Service vehicles o Chapel Hill Transit – 8 - $240,000 • Expansion service o Light Rail Service - Durham - Chapel Hill - alternatives analysis and preliminary engineering and design - $2,750,000 o Chapel Hill Transit - Park & Ride Lot Expansion - Land Acquisition and Design - 1000 spaces - $2,000,000 o Triangle Transit – 23 expansion buses - $9,100,000 o Triangle Transit – 80 vanpool vans - $1,700,000 o Triangle Transit – Planning Assistance - $7,000,000 o Triangle Transit – 9 paratransit vans - $357,000 o Chapel Hill Transit – 5 buses - $1,800,000 o Hillsborough In Town Transit Circulator - $198,000 o Hillsborough Train Station/Multi-modal Center - $1,500,000	CH, C, H, OC, TT		STP, CMAQ, Public Transit Sources	$50,541,000
2	Martin Luther King Jr. Boulevard/NC 86 Corridor (I-40 to North Street) sidewalks and bike lanes	CH	2.5	STP, CMAQ, State Highway Sources	$3,945,000
3	Ephesus Church Road (US 15-501 to Farrington Road) sidewalks, bike lanes, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
4	NC 54 (Fordham Boulevard to Barbee Chapel Road) sidewalks and bike lanes	CH	1.2	STP, CMAQ, State Highway Sources	$1,550,000
5	Erwin Road (15-501 to NC 751) sidewalks, bike lanes, and safety improvements (design may vary along length)	CH, DC	1.1	STP, CMAQ, State Highway Sources	$5,527,000
6	Fordham Boulevard (Columbia St/US 15-501 South to Ephesus Church Road) sidewalks, wide-outside lanes, and transit accommodations	CH	4.0	STP, CMAQ, State Highway Sources	$5,147,000

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 7 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
7	18 Chapel Hill Intersections - bicycle and pedestrian improvements	CH	0.0	STP, CMAQ, State Highway Sources	$1,542,000
8	Pedestrian and Bicycle Overpass/Underpass Across Fordham Boulevard between Manning Drive and Old Mason Farm Road	CH	0.0	STP, CMAQ, State Highway Sources	$2,261,000
9	Bolin Creek Greenway (Martin Luther King Jr. Blvd. to Umstead Park.) multi-use path	CH	0.8	STP, CMAQ, State Highway Sources	$1,500,000
10	C-5102 Transportation Demand Management	MPO-wide		CMAQ, O	$17,000,000
11	Intelligent Transportation System Improvements • Triangle Transit – Real Time Passenger Information - $700,000 • Additional projects will be determined during the ITS Strategic Deployment Plan Update.	MPO-wide		Public Transit Sources	Total cost TBD by study
12	R-2825 South Churton Street Improvements (I-40 to the Eno River)	H, OC	2.5	Highway Sources	$19,260,000
13	Nash Street (Faucette Mill to Dimmocks Mill) sidewalks	H	1.8	STP, CMAQ, State Highway Sources	$679,000
14	North Greensboro (Weaver to Shelton) paint, median, bicycle signal detection, etc.	C	0.2	STP, CMAQ, State Highway Sources	$200,000
15	Estes Drive (NC86 to Caswell Road) widen existing roadway to include two 12-foot travel lanes, four-foot bicycle lanes and sidewalks.	CH	0.7	STP, CMAQ, State Highway Sources	$421,000
16	Estes Dr. Extension (Greensboro to NC 86) bike lanes, sidewalks, and transit accommodations and multi-use path to Williams Street	C, CH	2.6	STP, CMAQ, State Highway Sources	$2,197,000
17	Piney Mountain (NC 86 to Riggsbee) turn lanes, sidewalks, bicycle lanes and transit accommodations	CH	1.0	STP, CMAQ, State Highway Sources	$2,442,000
18	Morgan Creek Phase II (from the end of Phase I to Carrboro Town line.) multi-use path	CH	1.0	STP, CMAQ, State Highway Sources	$3,500,000
19	NC 54 Sidepath (James Street to Anderson Park) multi-use path	C	0.8	STP, CMAQ, State Highway Sources	$700,000
20	Fordham Boulevard (Ephesus Church Road to Elliott Road) sidewalks	CH	0.3	STP, CMAQ, State Highway Sources	$175,000
21	Culbreth Road (Adam Way to Smith Level) sidewalks	CH	0.5	STP, CMAQ, State Highway Sources	$165,000
22	Bolin Creek Phase IV (Umstead Park to Carolina North, follow Umstead Drive to Estes Drive, then along Estes Drive to Carolina North) multi-use path	CH	1.3	STP, CMAQ, State Highway Sources	$2,500,000
23	Bolin Creek/Little Creek Greenway (Chapel Hill Community Center to Pinehurst Drive.) multi-use path	CH	1.3	STP, CMAQ, State Highway Sources	$943,000
24	Old Fayetteville (NC 54 to McDougle School) sidewalks and bike lanes	C	1.0	STP, CMAQ, State Highway Sources	$1,800,000

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 7 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
25	Franklin/Merritt Mill/Brewer/Main Intersection	C, CH	0.0	Highway Sources	$1,000,000
26	Orange Grove Rd. Pedestrian Bridge	H, OC	0.0	STP, CMAQ, State Highway Sources	$1,000,000
27	Orange Grove Rd Extension to US 70 Business	H, OC	0.3	Highway Sources	$30,000,000
28	FY 2012 Transit Projects • Preventative maintenance and routine capital items o Chapel Hill Transit - $3,190,000 • Replacement buses o Chapel Hill Transit – 9 buses - $3,250,000 • Expansion service o Chapel Hill Transit - Park & Ride Lot Expansion - Construction - 1000 spaces - $5,000,000	CH, C, TT		STP, CMAQ, Public Transit Sources	$11,440,000

DCHC MPO - FY 2011-2017 Transportation Improvement Program Regional Priority List Adopted February 11, 2009
Division 8 – Top Priority List

Rank	Name (limits)	Jurisdiction	Miles	Funding Source	Cost
1	CHT to Establish Bus Route from Pittsboro to Chapel Hill-Park & Ride Lot on US 15-501	CC	10.8	STP, CMAQ, Public Transit Sources	$352,712 (annual operating cost)
2	C-5102 Transportation Demand Management	MPO-wide	0	CMAQ, O, STP	$17,000,000
3	Area Plan in Cooperation with Cary (North of US 64, East of Jordan Lake)	CC	0	STP, Highway Sources	$100,000
4	Intelligent Transportation System Improvements • Triangle Transit – Real Time Passenger Information - $700,000 • Additional projects will be determined during the ITS Strategic Deployment Plan Update.	MPO-wide	0	Highway and Public Transit Sources	Total cost TBD by study
5	NC 751 (US 64 to Durham County Line) widening	CC	9.4	Highway Sources	$44,130,000
6	Jack Bennett Road [SR1717] (US 15-501 to Lystra Rd. [SR1721]) safety improvements	CC	3.2	Safety and Highway Sources	$6,900,000
7	Hamlets Chapel Road [SR 1525] (Perry Harrison Elementary School) increase length of turn lanes	CC	0.2	Highway Sources	$250,000
8	Lystra Road [SR 1721] (US 15-501 to Farrington Point Rd. [SR1008]) safety improvements	CC	4.6	Safety and Highway Sources	$9,919,000
9	Lystra Road [SR 1721] (Jack Bennett Rd. [SR1717] to west side of N. Chatham Elementary) increase length of turn lanes	CC	0.4	Highway Sources	$250,000
10	Jeremiah Drive [SR 1762] (Lystra Rd. [SR 1721] to End) elevate road for flood control	CC	0.8	Highway Sources	$100,000

DCHC MPO – FY 2012-2018 Transportation Improvement Program Regional Priority List
Development of MPO-wide List of Top 25 Highway Projects

Option A – Rank by Methodology Points

Problem: This option rearranges the Division lists. Some projects with lower points were ranked higher on the Division lists by the TAC. Some projects that could be considered by NCDOT as multi-modal highway projects were ranked by the MPO using the bike/ped methodology. The bike/ped methodology points are not comparable to the highway methodology points.

MPO-wide Rank	Methodology Points	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	25 bike/ped	11 (Div. 5) 3 (Div. 7)	Ephesus Church Road (US 15-501 to Farrington Road) bike lanes, sidewalks, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
2	22 bike/ped	6	Fordham Boulevard (Columbia St/US 15-501 South to Ephesus Church Road) sidewalks, wide-outside lanes, and transit accommodations	CH	4.0	STP, CMAQ, State Highway Sources	$5,147,000
3	22 bike/ped	19 (Div. 5) 5 (Div. 7)	Erwin Road (15-501 to NC 751) bike lanes, sidewalks, and safety improvements (design may vary along length)	CH, DC	5.6	STP, CMAQ, State Highway Sources	$5,527,000
4	19 bike/ped	14	North Greensboro (Weaver to Shelton) paint, median, bicycle signal detection, etc.	C	0.2	STP, CMAQ, State Highway Sources	$200,000
5	19 bike/ped	15	Estes Drive (NC86 to Caswell Road) widen existing roadway to include two 12-foot travel lanes, four-foot bicycle lanes and sidewalks.	CH	0.7	STP, CMAQ, State Highway Sources	$421,000
6	18 bike/ped	16	Estes Dr. Extension (Greensboro to NC 86) bike lanes, sidewalks, and transit accommodations and multi-use path to Williams Street	C, CH	2.6	STP, CMAQ, State Highway Sources	$2,197,000
7	18 bike/ped	17	Piney Mountain (NC 86 to Riggsbee) turn lanes, sidewalks, bicycle lanes and transit accommodations	CH	1.0	STP, CMAQ, State Highway Sources	$2,442,000
8	18	7	U-3804 Hillandale Rd. (I-85 to Carver St.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.6	Highway Sources	$11,191,000
9	17	8	U-3308 Alston Ave. (NC 147 to NC 98) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.9	Highway Sources	$25,916,000

MPO-wide Rank	Methodology Points	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
10	17	17	U-4716 Hopson Rd./Church St. grade separation at RR, close Church St. RR crossing	D, DC	0.3	Highway and Rail Sources	$6,500,000
11	14	3	U-0071 East End Connector (NC 147 to US 70) new highway facility	D, DC	2.9	T, Highway Sources	$161,792,000
12	14	27	Orange Grove Rd Extension to US 70 Business	H, OC	0.3	Highway Sources	$30,000,000
13	13	9	Fayetteville Rd. (Woodcroft Pkwy. To Riddle Rd.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	2.4	Highway Sources	$21,100,000
14	13	10	NC 54 (I-40 east to NC 55) widen to multi-lane divided with bus rapid transit, bike lanes, and sidewalks	D, DC	5.3	Highway Sources	$91,500,000
15	13	25	Franklin/Merritt Mill/Brewer/Main Intersection	C, CH	0.0	Highway Sources	$1,000,000
16	12	12	R-2825 South Churton Street Improvements (I-40 to the Eno River)	H, OC	2.5	Highway Sources	$19,260,000
17	11	5	NC 751 (US 64 to Durham County Line) widening	CC	9.4	Highway Sources	$44,130,000
18	9	6	Jack Bennett Road [SR1717] (US 15-501 to Lystra Rd. [SR1721]) safety improvements	CC	3.2	Safety and Highway Sources	$6,900,000
19	8	7	Hamlets Chapel Road [SR 1525] (Perry Harrison Elementary School) increase length of turn lanes	CC	0.2	Highway Sources	$250,000
20	7	8	Lystra Road [SR 1721] (US 15-501 to Farrington Point Rd. [SR1008]) safety improvements	CC	4.6	Safety and Highway Sources	$9,919,000
21	7	9	Lystra Road [SR 1721] (Jack Bennett Rd. [SR1717] to west side of N. Chatham Elementary) increase length of turn lanes	CC	0.4	Highway Sources	$250,000
22	4	10	Jeremiah Drive [SR 1762] (Lystra Rd. [SR 1721] to End) elevate road for flood control	CC	0.8	Highway Sources	$100,000

Option B – Rank by Division Rank

Problem: This penalizes Division 5 and 7 since they had more highly ranked bike/ped and transit projects than Division 8. This method does not recognize the areas of the MPO with higher populations and thus more projects.

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	3	U-0071 East End Connector (NC 147 to US 70) new highway facility	D, DC	2.9	T, Highway Sources	$161,792,000
2	5	NC 751 (US 64 to Durham County Line) widening	CC	9.4	Highway Sources	$44,130,000
3	6	Fordham Boulevard (Columbia St/US 15-501 South to Ephesus Church Road) sidewalks, wide-outside lanes, and transit accommodations	CH	4.0	STP, CMAQ, State Highway Sources	$5,147,000
4	6	Jack Bennett Road [SR1717] (US 15-501 to Lystra Rd. [SR1721]) safety improvements	CC	3.2	Safety and Highway Sources	$6,900,000
5	7	U-3804 Hillandale Rd. (I-85 to Carver St.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.6	Highway Sources	$11,191,000
6	7	Hamlets Chapel Road [SR 1525] (Perry Harrison Elementary School) increase length of turn lanes	CC	0.2	Highway Sources	$250,000
7	8	U-3308 Alston Ave. (NC 147 to NC 98) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.9	Highway Sources	$25,916,000
8	8	Lystra Road [SR 1721] (US 15-501 to Farrington Point Rd. [SR1008]) safety improvements	CC	4.6	Safety and Highway Sources	$9,919,000
9	9	Fayetteville Rd. (Woodcroft Pkwy. To Riddle Rd.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	2.4	Highway Sources	$21,100,000
10	9	Lystra Road [SR 1721] (Jack Bennett Rd. [SR1717] to west side of N. Chatham Elementary) increase length of turn lanes	CC	0.4	Highway Sources	$250,000
11	10	NC 54 (I-40 east to NC 55) widen to multi-lane divided with bus rapid transit, bike lanes, and sidewalks	D, DC	5.3	Highway Sources	$91,500,000
12	10	Jeremiah Drive [SR 1762] (Lystra Rd. [SR 1721] to End) elevate road for flood control	CC	0.8	Highway Sources	$100,000
13	11 (Div. 5) 3 (Div. 7)	Ephesus Church Road (US 15-501 to Farrington Road) bike lanes, sidewalks, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
14	12	R-2825 South Churton Street Improvements (I-40 to the Eno River)	H, OC	2.5	Highway Sources	$19,260,000
15	14	North Greensboro (Weaver to Shelton) paint, median, bicycle signal detection, etc.	C	0.2	STP, CMAQ, State Highway Sources	$200,000
16	15	Estes Drive (NC86 to Caswell Road) widen existing roadway to include two 12-foot travel lanes, four-foot bicycle lanes and sidewalks.	CH	0.7	STP, CMAQ, State Highway Sources	$421,000

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
17	16	Estes Dr. Extension (Greensboro to NC 86) bike lanes, sidewalks, and transit accommodations and multi-use path to Williams Street	C, CH	2.6	STP, CMAQ, State Highway Sources	$2,197,000
18	17	U-4716 Hopson Rd./Church St. grade separation at RR, close Church St. RR crossing	D, DC	0.3	Highway and Rail Sources	$6,500,000
19	17	Piney Mountain (NC 86 to Riggsbee) turn lanes, sidewalks, bicycle lanes and transit accommodations	CH	1.0	STP, CMAQ, State Highway Sources	$2,442,000
20	19 (Div. 5) 5 (Div. 7)	Erwin Road (15-501 to NC 751) bike lanes, sidewalks, and safety improvements (design may vary along length)	CH, DC	5.6	STP, CMAQ, State Highway Sources	$5,527,000
21	25	Franklin/Merritt Mill/Brewer/Main Intersection	C, CH	0.0	Highway Sources	$1,000,000
22	27	Orange Grove Rd Extension to US 70 Business	H, OC	0.3	Highway Sources	$30,000,000

Option C – Match-Up Division 5 and 7 Lists Using Common Projects – Division 8 Listed at Bottom

Problem: The two common projects between Division 5 and 7 were ranked relatively low for Division 5 and high for Division 7 resulting in most of Division 5's projects being ranked higher than Division 7. There are no common projects with Division 8.

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	3	U-0071 East End Connector (NC 147 to US 70) new highway facility	D, DC	2.9	T, Highway Sources	$161,792,000
2	7	U-3804 Hillandale Rd. (I-85 to Carver St.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.6	Highway Sources	$11,191,000
3	8	U-3308 Alston Ave. (NC 147 to NC 98) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.9	Highway Sources	$25,916,000
4	9	Fayetteville Rd. (Woodcroft Pkwy. To Riddle Rd.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	2.4	Highway Sources	$21,100,000
5	10	NC 54 (I-40 east to NC 55) widen to multi-lane divided with bus rapid transit, bike lanes, and sidewalks	D, DC	5.3	Highway Sources	$91,500,000
6	11 (Div. 5) 3 (Div. 7)	Ephesus Church Road (US 15-501 to Farrington Road) bike lanes, sidewalks, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
7	17	U-4716 Hopson Rd./Church St. grade separation at RR, close Church St. RR crossing	D, DC	0.3	Highway and Rail Sources	$6,500,000
8	19 (Div. 5) 5 (Div. 7)	Erwin Road (15-501 to NC 751) bike lanes, sidewalks, and safety improvements (design may vary along length)	CH, DC	5.6	STP, CMAQ, State Highway Sources	$5,527,000
9	6	Fordham Boulevard (Columbia St/US 15-501 South to Ephesus Church Road) sidewalks, wide-outside lanes, and transit accommodations	CH	4.0	STP, CMAQ, State Highway Sources	$5,147,000
10	12	R-2825 South Churton Street Improvements (I-40 to the Eno River)	H, OC	2.5	Highway Sources	$19,260,000
11	14	North Greensboro (Weaver to Shelton) paint, median, bicycle signal detection, etc.	C	0.2	STP, CMAQ, State Highway Sources	$200,000
12	15	Estes Drive (NC86 to Caswell Road) widen existing roadway to include two 12-foot travel lanes, four-foot bicycle lanes and sidewalks.	CH	0.7	STP, CMAQ, State Highway Sources	$421,000
13	16	Estes Dr. Extension (Greensboro to NC 86) bike lanes, sidewalks, and transit accommodations and multi-use path to Williams Street	C, CH	2.6	STP, CMAQ, State Highway Sources	$2,197,000
14	17	Piney Mountain (NC 86 to Riggsbee) turn lanes, sidewalks, bicycle lanes and transit accommodations	CH	1.0	STP, CMAQ, State Highway Sources	$2,442,000
15	25	Franklin/Merritt Mill/Brewer/Main Intersection	C, CH	0.0	Highway Sources	$1,000,000
16	27	Orange Grove Rd Extension to US 70 Business	H, OC	0.3	Highway Sources	$30,000,000
17	5	NC 751 (US 64 to Durham County Line) widening	CC	9.4	Highway Sources	$44,130,000

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
18	6	Jack Bennett Road [SR1717] (US 15-501 to Lystra Rd. [SR1721]) safety improvements	CC	3.2	Safety and Highway Sources	$6,900,000
19	7	Hamlets Chapel Road [SR 1525] (Perry Harrison Elementary School) increase length of turn lanes	CC	0.2	Highway Sources	$250,000
20	8	Lystra Road [SR 1721] (US 15-501 to Farrington Point Rd. [SR1008]) safety improvements	CC	4.6	Safety and Highway Sources	$9,919,000
21	9	Lystra Road [SR 1721] (Jack Bennett Rd. [SR1717] to west side of N. Chatham Elementary) increase length of turn lanes	CC	0.4	Highway Sources	$250,000
22	10	Jeremiah Drive [SR 1762] (Lystra Rd. [SR 1721] to End) elevate road for flood control	CC	0.8	Highway Sources	$100,000

Option D – Rank by Alternating Between Division 5, 7, and 8.

Problem: This method does not recognize the areas of the MPO with higher populations and thus more projects. Common projects for Division 5 and 7 result in a reordering of the Division 5 projects.

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
1	3	U-0071 East End Connector (NC 147 to US 70) new highway facility	D, DC	2.9	T, Highway Sources	$161,792,000
2	11 (Div. 5) 3 (Div. 7)	Ephesus Church Road (US 15-501 to Farrington Road) bike lanes, sidewalks, and safety improvements	CH, DC	2.1	STP, CMAQ, State Highway Sources	$600,000
3	5	NC 751 (US 64 to Durham County Line) widening	CC	9.4	Highway Sources	$44,130,000
4	7	U-3804 Hillandale Rd. (I-85 to Carver St.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.6	Highway Sources	$11,191,000
5	19 (Div. 5) 5 (Div. 7)	Erwin Road (15-501 to NC 751) bike lanes, sidewalks, and safety improvements (design may vary along length)	CH, DC	5.6	STP, CMAQ, State Highway Sources	$5,527,000
6	6	Jack Bennett Road [SR1717] (US 15-501 to Lystra Rd. [SR1721]) safety improvements	CC	3.2	Safety and Highway Sources	$6,900,000
7	8	U-3308 Alston Ave. (NC 147 to NC 98) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	0.9	Highway Sources	$25,916,000
8	6	Fordham Boulevard (Columbia St/US 15-501 South to Ephesus Church Road) sidewalks, wide-outside lanes, and transit accommodations	CH	4.0	STP, CMAQ, State Highway Sources	$5,147,000
9	7	Hamlets Chapel Road [SR 1525] (Perry Harrison Elementary School) increase length of turn lanes	CC	0.2	Highway Sources	$250,000
10	9	Fayetteville Rd. (Woodcroft Pkwy. To Riddle Rd.) widen to 4-lane divided, bike lanes, and sidewalks	D, DC	2.4	Highway Sources	$21,100,000
11	12	R-2825 South Churton Street Improvements (I-40 to the Eno River)	H, OC	2.5	Highway Sources	$19,260,000
12	8	Lystra Road [SR 1721] (US 15-501 to Farrington Point Rd. [SR1008]) safety improvements	CC	4.6	Safety and Highway Sources	$9,919,000
13	10	NC 54 (I-40 east to NC 55) widen to multi-lane divided with bus rapid transit, bike lanes, and sidewalks	D, DC	5.3	Highway Sources	$91,500,000
14	14	North Greensboro (Weaver to Shelton) paint, median, bicycle signal detection, etc.	C	0.2	STP, CMAQ, State Highway Sources	$200,000
15	9	Lystra Road [SR 1721] (Jack Bennett Rd. [SR1717] to west side of N. Chatham Elementary) increase length of turn lanes	CC	0.4	Highway Sources	$250,000
16	17	U-4716 Hopson Rd./Church St. grade separation at RR, close Church St. RR crossing	D, DC	0.3	Highway and Rail Sources	$6,500,000

MPO-wide Rank	Division Rank	Name (limits)	Jurisdiction	Miles	Funding Sources	Cost
17	15	Estes Drive (NC86 to Caswell Road) widen existing roadway to include two 12-foot travel lanes, four-foot bicycle lanes and sidewalks.	CH	0.7	STP, CMAQ, State Highway Sources	$421,000
18	10	Jeremiah Drive [SR 1762] (Lystra Rd. [SR 1721] to End) elevate road for flood control	CC	0.8	Highway Sources	$100,000
19	16	Estes Dr. Extension (Greensboro to NC 86) bike lanes, sidewalks, and transit accommodations and multi-use path to Williams Street	C, CH	2.6	STP, CMAQ, State Highway Sources	$2,197,000
20	17	Piney Mountain (NC 86 to Riggsbee) turn lanes, sidewalks, bicycle lanes and transit accommodations	CH	1.0	STP, CMAQ, State Highway Sources	$2,442,000
21	25	Franklin/Merritt Mill/Brewer/Main Intersection	C, CH	0.0	Highway Sources	$1,000,000
22	27	Orange Grove Rd Extension to US 70 Business	H, OC	0.3	Highway Sources	$30,000,000

DRAFT

Comprehensive Transportation Plan (CTP)

Tasks and Timeline (6/18/09)

Introduction

The DCHC MPO and Orange County will develop and adopt Comprehensive Transportation Plans(CTP) for their respective planning areas within the next year. The MPO and Orange County will coordinate the timeline and tasks to the greatest extent possible, and try to make the process as clear as possible given that the 2035 LRTP was recently completed and is very similar to the CTP, and given that most Orange County citizens live in the DCHC MPO planning area. Throughout the process it will remain clear that the TAC will adopt the CTP for the area in the MPO's planning area, and the Orange County Board of Commissioners (BOCC) will adopt the CTP for the area of Orange County that is not in the DCHC MPO or Burlington-Graham MPO.

The DCHC MPO developed the 2035 LRTP and CTP in tandem throughout the last two years, dropping further CTP development in the fall of 2008 when the 2035 LRTP Preferred Options were advanced. As a result, the MPO has completed many of the CTP development tasks (although the NCDOT has not reviewed and provided input on these tasks, yet). Orange County will need to complete a few tasks to reach a point in which the MPO and Orange County CTP process can proceed in parallel. However, this "catch up" process will not take long. Orange County plans to conduct a workshop in September to present deficiency information and gather initial citizen input, and at that point will be ready to work on alternatives.

This document presents the tasks and timeline for the DCHC MPO's CTP process. Given the coordination with the concurrent Orange County process, information on the coordination with Orange County is presented in *italics* when deemed relevant.

Tasks

1- CTP Schedule and Tasks (TAC approve September 2009)

Create schedule and detailed tasks, present to TAC, and receive TAC approval. Task details will include the type of maps, visual presentations, analysis and public involvement that will be completed for each task.

2- Goals and Objectives (completed)

The CTP process will use the same Goals and Objectives in the joint 2035 LRTP and CTP process.

3- Deficiency Analysis (TAC approve October 2009)

The Deficiency Analysis will be based on a Triangle Regional Model (TRM) model run that will use the Buildout Socioeconomic Data (SE Data) scenario on the Existing Plus Committed transportation network. This combination will depict transportation conditions at a point in time beyond 2035 in which only the current transportation facilities exist.

NCDOT has suggested the use of the 2035 Transit Node SE Data scenario on the 2035 LRTP network. This combination would help eliminate the many large network overloads (V/C ratios that exceed 1.1) that would dominate the V/C map with red ink, and help focus which projects need to be added to the 2035 LRTP to produce the CTP.

The tools proposed for the Deficiency Analysis include:

a. V/C ratio maps (current and future; from TRM)
b. Performance measures (current and future; from TRM)
c. Congestion Management Plan (CMP) data from Chapel Hill and Carrboro Mobility Report Card and DCHC MPO CMP:
    i. Intersection Level of Service (current and future)
    ii. Travel time

Orange County will present deficiency data at their initial September workshop and will likely include similar data, but not the same exact data.

4- Alternatives (TAC release December 2009)

Develop Alternatives for public review and input. Alternatives might include:

a. 2035 LRTP
b. 2035 LRTP plus additional projects to address deficiencies
c. Comprehensive Transportation Plan (from the 2035 LRTP and CTP process)

The MPO and Orange County will work together to present the same Alternatives.

5- Public Input (complete by February 2010)

The Alternatives and supporting information will be released for public input, and will include:

a. Map of each Alternative (following NCDOT prescribed format)
b. Deficiency Analysis data
c. Performance measures and V/C maps for each Alternative (likely presented with corresponding Deficiency Analysis data)

The MPO and Orange County will work together to present the same maps, performance measures and other data.

The public outreach will include:

a. Three workshops in Durham, one in Chapel Hill, one in Hillsborough and one in northeast Chatham County
b. TAC public hearing
c. Mailing and published notices
d. Web site presentation and application to take comments
e. Newsletter

Orange County will have presentations to the BOCC and advisory boards, and conduct a public workshop.

6- Recommended CTP (TAC receive March 2010)

Prepare recommended CTP based on TAC, public and staff input. Coordinate with CAMPO, Orange County, Person County, Granville County and Burlington-Graham MPO to help ensure similar treatment of improvements and services that cross the borders.

7- Adopted CTP (TAC adopt May 2010)

TAC adopts the CTP for the DCHC MPO and endorses the CTP for the area in Orange County that is not in the DCHC MPO planning area. The process for the North Carolina Board of Transportation to adopt the CTP will likely take an additional four months.

8- Technical Report (complete by June 2010)

The CTP technical report for the DCHC MPO and Orange County can be a joint report. Staff has not discussed this item, yet.

9- Corridor Protection and Programming

Local staff will be responsible for several follow-on tasks to the CTP adoption that are needed for the CTP to be effective.

Task Timeline

A simple task timeline is presented on the following page (page 4).

DRAFT

Comprehensive Transportation Plan – Task Timeline

Task ID#	Plan Tasks	Pub. Involve.	2009 Jul	Aug	Sep	Oct	Nov	Dec	2010 Jan	Feb	Mar	Apr	May	Jun
1	**CTP Schedule and Tasks** -- TAC endorse CTP schedule, tools, data, plan, etc.													
2	**Goals and Objectives --** Board endorse goals and objectives		completed											
3	**Deficiency Analysis** --													
4	**Alternatives** -- Develop alternatives and release for public comment													
5	**Public Input** -- Publish alternatives, mail CTP newsletter and notices, conduct workshops and TAC													
6	**Recommended CTP** -- Prepare and review recommended CTP													
7	**Adopted CTP** --													
8	**Technical Report --**													
9	**Corridor Protection and Programming --**													

DCHC
Durham-Chapel Hill-Carrboro
METROPOLITAN
Planning Organization

FARRINGTON ROAD CORRIDOR STUDY

Prepared for:

DURHAM · CHAPEL HILL · CARRBORO
METROPOLITAN PLANNING ORGANIZATION

Prepared by:

Kimley-Horn and Associates, Inc.

URBAN RESOURCE GROUP
A DIVISION OF KIMLEY-HORN AND ASSOCIATES, INC.

November 2008

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1 introduction

The Raleigh-Durham-Chapel Hill "Research Triangle" area, with its favorable weather, affordable housing, great schools and universities, and presence of high tech jobs, has long been a desirable place to live and work in the region. The metropolitan area is one of the fastest growing areas in the country, expanding from a 1970 population of 537,000 to a 2006 population of 1,400,000.

Growth in the Triangle has spread from the traditional urban centers in Raleigh, Durham, and Chapel Hill to neighboring municipalities including Cary and Hillsborough, and beyond into rural areas of Chatham, Durham, Orange, and Wake Counties. Large tracts of rural, undeveloped land, combined with proximity to the Research Triangle area and Research Triangle Park make land surrounding Jordan Lake particularly desirable for another wave of new development. The focus of the Farrington Road Corridor Study is to identify the type and extent of growth patterns and development intensities anticipated for the area, and the associated traffic impacts likely to result.

Recommended improvements from the Corridor Study will be considered by DCHC MPO staff preparing the 2035 Long Range Transportation Plan. Member jurisdictions represented in the study area are encouraged to act collaboratively on opportunities to improve land use, urban design, and transportation decision-making discussed in this report; highlighting the demand factors (i.e., trip generation, trip length, and travel mode) influenced by local land use decisions to improve the safety and efficiency of the proposed transportation system.

Building the Case for Urgency

The Research Triangle area experienced considerable growth in housing and employment over the past three decades. Demographers forecast a continuation of this trend for the foreseeable future. Much of the growth is forecasted to occur in undeveloped areas of the region that have large tracts of vacant, unprotected land available for development — including areas influencing the Farrington Road Corridor.

As a result of population growth and development pressures, traffic congestion steadily increased in the area over the past ten years. A recent report from the Texas Transportation Institute indicated the amount of time an average commuter spends in congestion for the

1 introduction

Research Triangle area increased from 26 hours to 35 hours per week, an increase of 35 percent over the past ten years. Automobile travel slowed by congestion in the same period increased from 34 percent to 47 percent for all peak period trips.

The majority of observed congestion in the study area is on freeways and major arterials; however, as development continues to expand outward into rural areas surrounding Jordan Lake, traffic on the rural road network is also expected to increase. These traffic volumes will increase both as a result of development in the immediate area and as travelers from outside of the study area look for ways to access Durham, Chapel Hill, and Research Triangle Park by circumventing larger, more congested freeways and arterials. Future year forecasts in the 2035 Triangle Area Regional Travel Demand Model predict that increased congestion will continue to degrade the rural road system if changes are not made to better integrate land use, urban design, and transportation decision-making.

Study Area

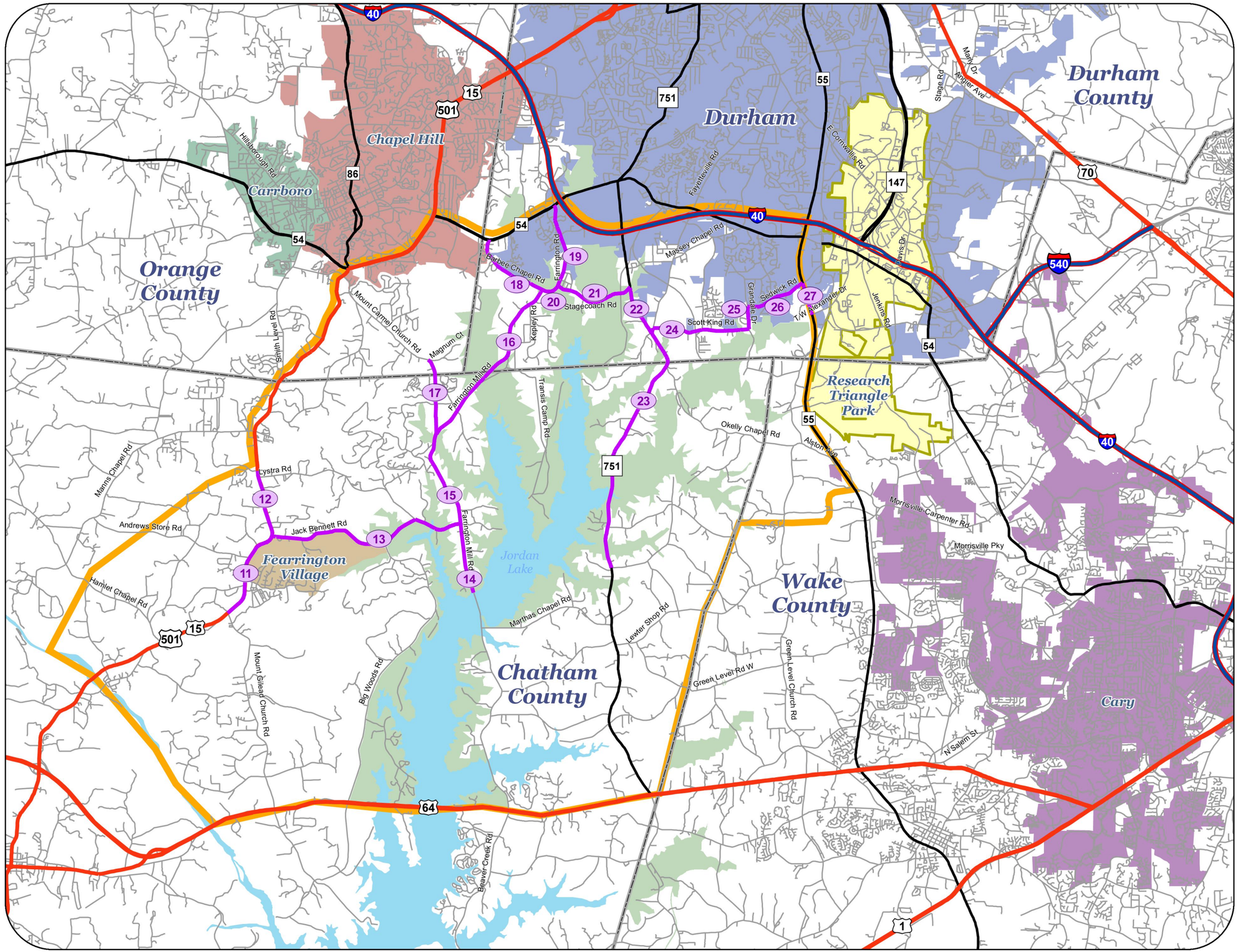
The study area for the Farrington Road Corridor Study focuses on the potential high-growth area emerging at the convergence of four counties — Chatham, Durham, Orange, and Wake — and three cities — Cary, Chapel Hill, and Durham — immediately south and west of Research Triangle Park (see **Figure 1**). B. Everett Jordan Reservoir (Jordan Lake) and surrounding environmentally-sensitive lands occupy a significant portion of the study area and help define its uniqueness within the region. Recent growth pressures highlight the strain on communities to manage sometimes conflicting goals related to growing population and employment centers, rural preservation initiatives, environmental stewardship, and regional transportation mobility.

Regional mobility in the study area is limited to a sparse network of federal and state highways. US 15-501, NC 55, and NC 751 run north to south. US 64 and NC 54 run east to west. Other major roads serving the study area include Farrington Road, Farrington Point Road, Old Farrington Point Road, Grande Drive, Jack Bennett Road, and Scott King Road. Connections between roads in the study area are limited by the presence of Jordan Lake.

Farrington Road Corridor Study

Figure 1

Study Area



November 25, 2008

N W E S

0 0.5 1 2 3 Miles

Kimley-Horn and Associates, Inc.

1 introduction

Working farms, residential homes, businesses, and permanent conservation areas are all present in the study area. A concentration of businesses and high-density residential uses in the northeastern portion of the study area have resulted in the emergence of a regional activity center anchored by a 1.3-million regional shopping mall (i.e., Streets at South Point) and supporting residential and non-residential uses. Critical watershed areas and other environmentally-sensitive lands observed in the study area make it unique in terms of the quantity and quality of development that should be expected.

Vision Statement

The Farrington Road corridor is uniquely situated at the intersection of Wake, Chatham, Orange, and Durham counties. The characteristics of this location are a composite of those in the greater region. As such, the vision for this corridor is drawn from the goals of the plans and policies that govern the region's land use and transportation:

> *To celebrate rural and environmentally-sensitive lands unique to this emerging growth area, and support local smart growth initiatives underway by local governments, by recommending appropriate future transportation improvements to the regional transportation system.*

Guiding Principles

The consultant team prepared a set of guiding principles for the corridor study based on a review of locally adopted plans, programs, and policies administered in the study area. These principles generally support, encourage, and implement a vision that celebrates protection of rural and environmentally-sensitive lands unique to the study area while recommending necessary and appropriate improvements to the regional transportation system.

Guiding principles for the corridor study include:

- Protect environmentally-sensitive lands in the study area from encroaching development.
- Prepare for future growth anticipated for the study area following the principles of smart growth, favoring compact

development nodes over continued single-use, suburban sprawl development patterns.

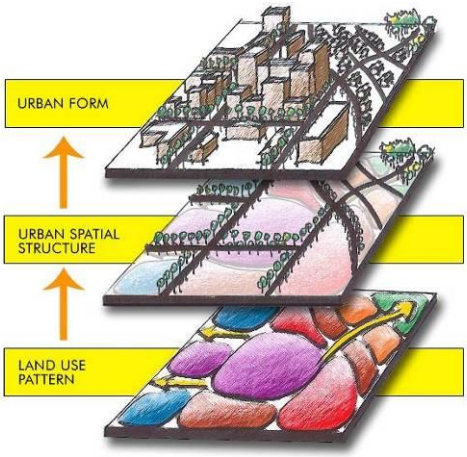
- Identify improvements to the transportation system that balance regional mobility with community livability, highlighting corridor (road-widening) improvements, intersection treatments, and opportunities to promote non-vehicular travel.

- Protect expensive transportation investments in the study area with locally-adopted development controls, such as access management standards or corridor protection ordinances that better coordinate future land use and transportation decisions.

2 transportation/land use connection

In recent years, planners and community leaders across the country have observed increased public interest for reducing or reversing the trend of suburban sprawl and its consequences. These efforts are largely motivated by the impacts associated with suburban development patterns: consumption of sensitive land for development, costly expansion of public infrastructure, and increasing traffic congestion. In emerging suburban development centers, the physical distance between complementary land uses (e.g., between home and work, home and school, or home and shopping) and a lack of overall street connectivity leads to increased vehicle miles traveled and energy consumption, longer commute times, increased air pollution, heightened infrastructure and public service costs, and decreased resource lands. Future year forecasts in the 2035 Triangle Regional Model (TRM) predict that these unintended consequences will continue for the region if changes are not made to better integrate land use, urban design, and transportation decision-making.

Land Use & Urban Form



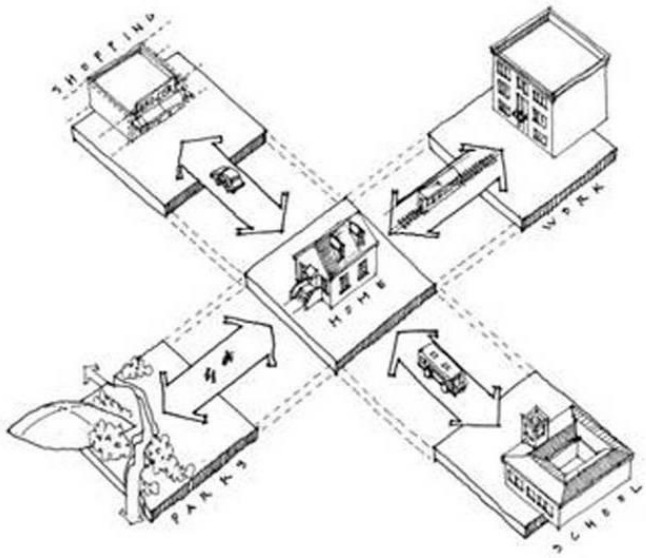
Land use serves as the foundation of the built environment. It defines the type, mix, and general location of uses within communities, and ultimately defines the boundaries for neighborhoods, commercial nodes, and employment centers. Communities make efforts to influence patterns of land use when they develop a future land use map or goals, objectives, and policies within a comprehensive plan. (See **Chapter 3** of this report for an overview of comprehensive plans administered by local governments in the study area).

Typically, a comprehensive plan represents the community's vision for how to promote local growth and prosperity. Urban form is the land use vision as it becomes reality in the physical world. It is commonly measured by street patterns, block lengths, building heights, building setbacks, average residential density, and average non-residential intensity. Putting these design elements in categories allows for the

region's form to be measured, and identifies a natural progression from rural to suburban to urban areas. The components of urban form are traditionally regulated through the community's zoning ordinance, subdivision ordinance, engineering specifications, or architectural design standards.

Urban Form & Travel Behavior

These physical elements of urban form can influence the comfort, speed, cost, convenience, attractiveness, and safety of movement between complementary land uses. Elements of the transportation system — including road, pedestrian, bicycle, and transit facilities — impact how land is developed in terms of size, shape, density, and mix of land uses. Where land uses fall and how they are designed (i.e., urban form) can favor one mode of travel over others, and may influence overall travel behavior by changing the ease of use or accessibility of various modes of travel for meeting daily needs. For example, if low-density development is spread out, the residents of such areas must rely almost entirely on automobiles to get from one location or land use to another. On the other hand, denser urban centers that combine complementary land uses near each other enable greater choice in transportation.



Bringing It All Together

Evaluating the relationship between land use, urban design, and regional travel behavior produces several benefits. When considered together, decisions and investments regarding all three elements could have a significant bearing on the DCHC MPO and its member jurisdictions represented in the study area:

- The impacts to sensitive land uses (such as environmentally-sensitive areas) can be minimized when facilities identified for transportation investments are

located *after* considering appropriate land use patterns and development intensities for the area.

- Development can be stimulated in prime locations if transportation investments consider available capacity or appropriate mobility options.

- Complementary activities can be placed next to existing or planned transportation infrastructure, making the most of land use opportunities and dedicated transportation investments.

- The quantity and location of travel demand can be influenced by land use decisions, highlighting the factors (i.e., trip generation, trip length, and travel mode) that influence the efficiency of a proposed transportation system.

- Context-sensitive design elements can transform transportation corridors from vehicle-dominated thoroughfares into community-oriented streets that safely and conveniently accommodate all modes of travel.

3 existing conditions

This section represents a comprehensive inventory and assessment of transportation conditions, the built environment, and the natural environment in the study area. It communicates how land is organized, used, and supported by the regional transportation system. A review of plans, programs, and policies administered in the study area acknowledges the forces that could affect the planning process or resulting recommendations for the Farrington Road Corridor Study.

Transportation

This section of the report inventories existing roads in the study area and current operational characteristics. As part of this assessment, the current roadway facilities were categorized in terms of operational characteristics and functional classification designation. Transit route, bicycle route, and available pedestrian information for these roads are also presented. The results of this task are presented in a series of maps that were used to identify operational capacities.

Existing Facilities

Portions of the following roads were inside the study area and were analyzed for this corridor study.

1. NC 55
2. US 15-501
3. Barbee Chapel Road
4. Farrington Road
5. Farrington Mill Road
6. Farrington Point Road
7. Grandale Drive
8. Hope Valley Road (NC 751)
9. Jack Bennett Road
10. Mount Carmel Church Road
11. Scott King Road
12. Sedwick Road
13. Stagecoach Road

3 existing conditions

Operational Characteristics

Operational characteristics included in this study are the functional classification, roadway attributes, and non-motorized facilities. These characteristics are briefly described in the sections below.

Functional Classification

Roadways are categorized into functional classification groups according to the character of service they provide. The four functional classification groups for urbanizing areas are principal arterials, minor arterials, collectors, and local streets. The length of the segment and degree of access control is a significant factor in defining the functional classification of a roadway. Regulated access (or limited access) is necessary on arterials to enhance their primary function of mobility, while the primary function of local streets is to provide access to adjacent land uses.

The functional classification of roads inside the study area was assigned using information available from the Triangle Regional Model (TRM).

Figure 2 shows the federal functional classification for facilities in the corridor analysis.

Roadway Attributes

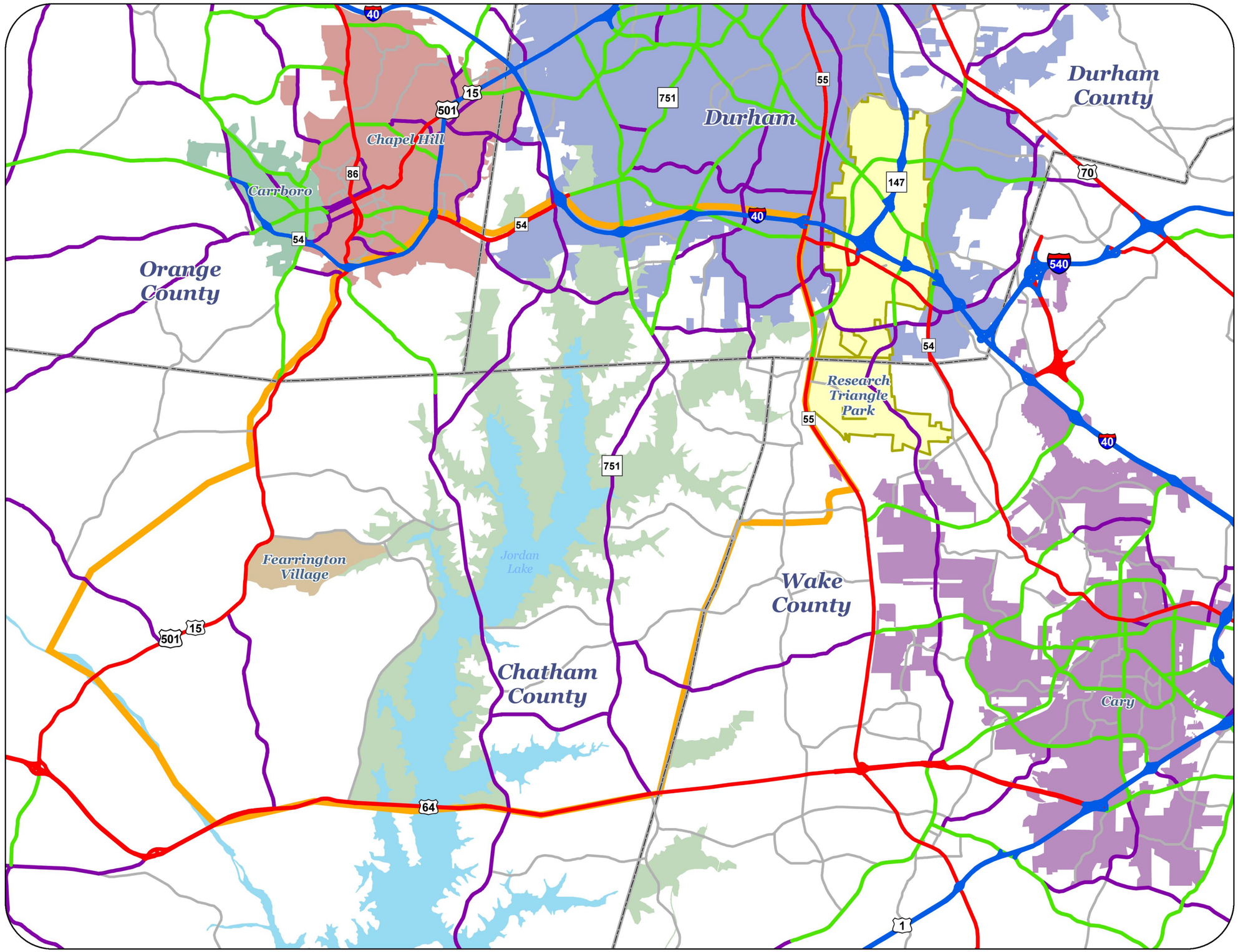
The Triangle Regional Model (TRM) was used to determine major roadway attributes for facilities within the study area. These attributes include the number of lanes, speed limit, and median type. The model also accounts for 2005 NCDOT Average Annual Daily Traffic (AADT) counts. These attributes are shown in **Figures 3 – 6**.

Farrington Road Corridor Study

Figure 2

Triangle Model Attributes

Functional Classification



Functional Classification

- Interstate/Freeway
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Study Area
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Counties
- Corps of Engineers Land
- Research Triangle Park

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N W E S

1 0.5 0 1 2 Miles

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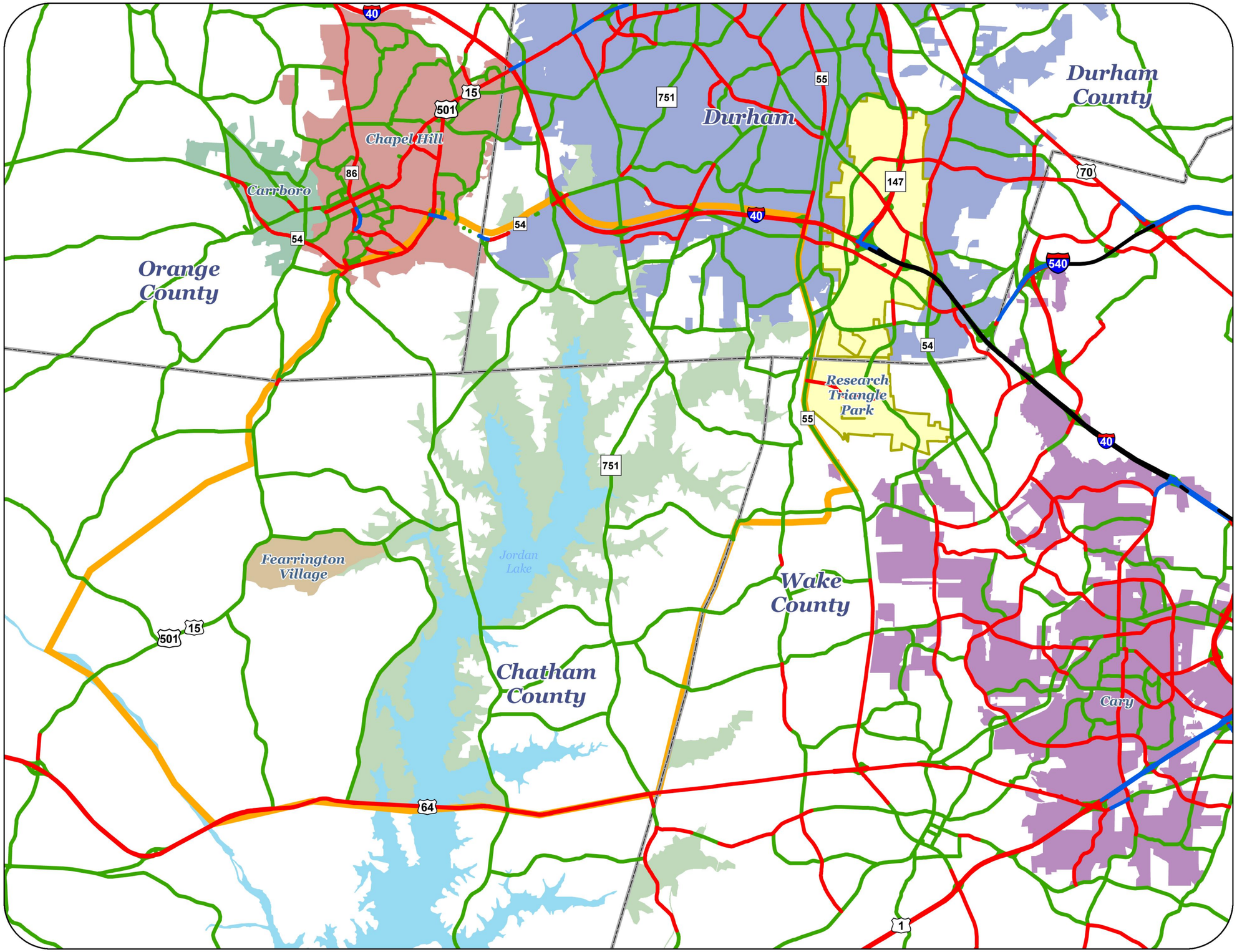
Farrington Road Corridor Study

Figure 3

Triangle Model Attributes

Number of Lanes Per Direction



Lanes Per Direction

- 1 Lane per Direction
- 2 Lanes per Direction
- 3 Lanes per Direction
- 4 Lanes per Direction
- Study Area
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Counties
- Corps of Engineers Land
- Research Triangle Park

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N W E S

0 0.5 1 2 3 Miles

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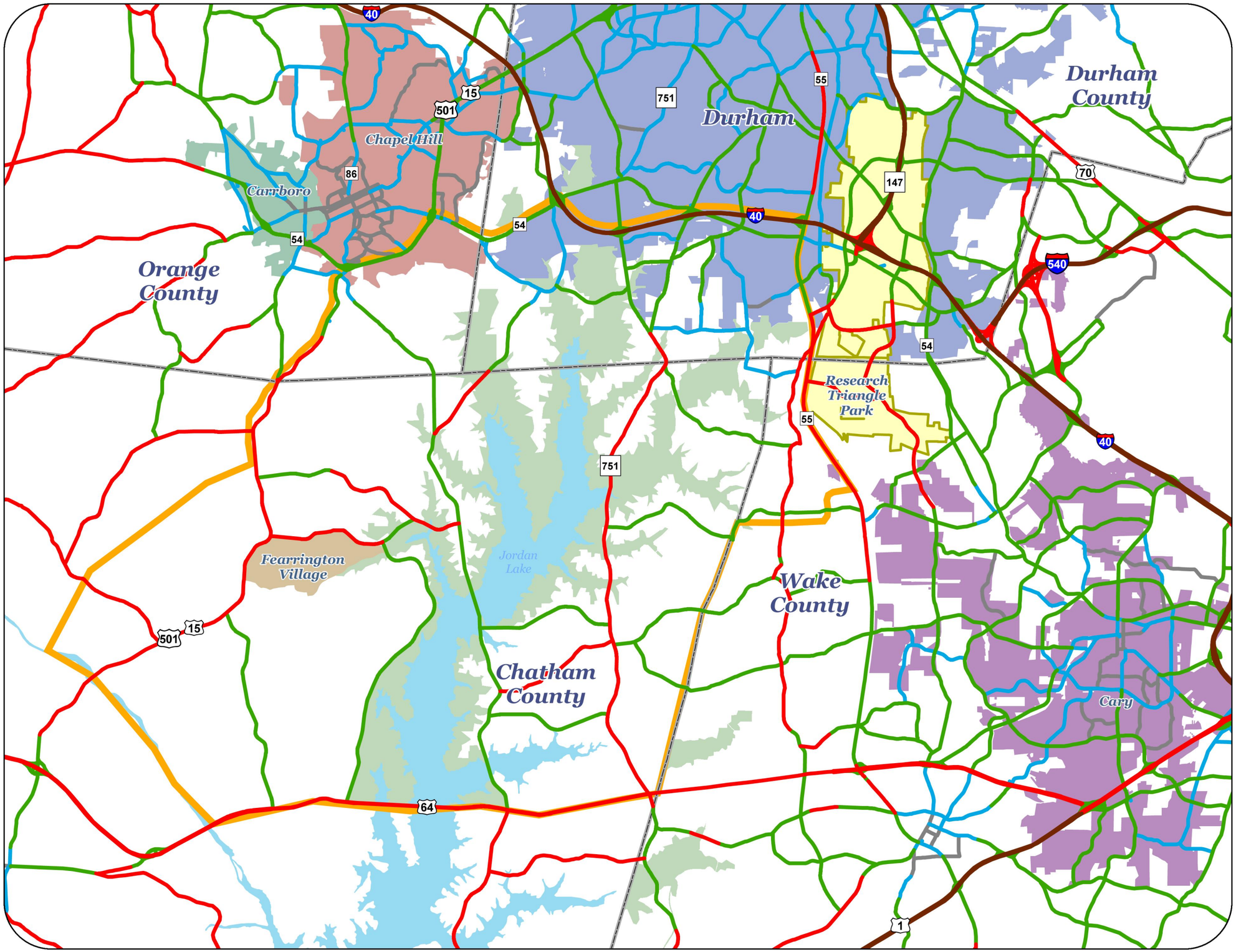
Figure 4

Triangle Model Attributes

Posted Speeds



Posted Speed (MPH)

- 25
- 35
- 45
- 55
- 65
- Study Area
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Counties
- Corps of Engineers Land
- Research Triangle Park

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N W E S

1 0.5 0 1 2 Miles

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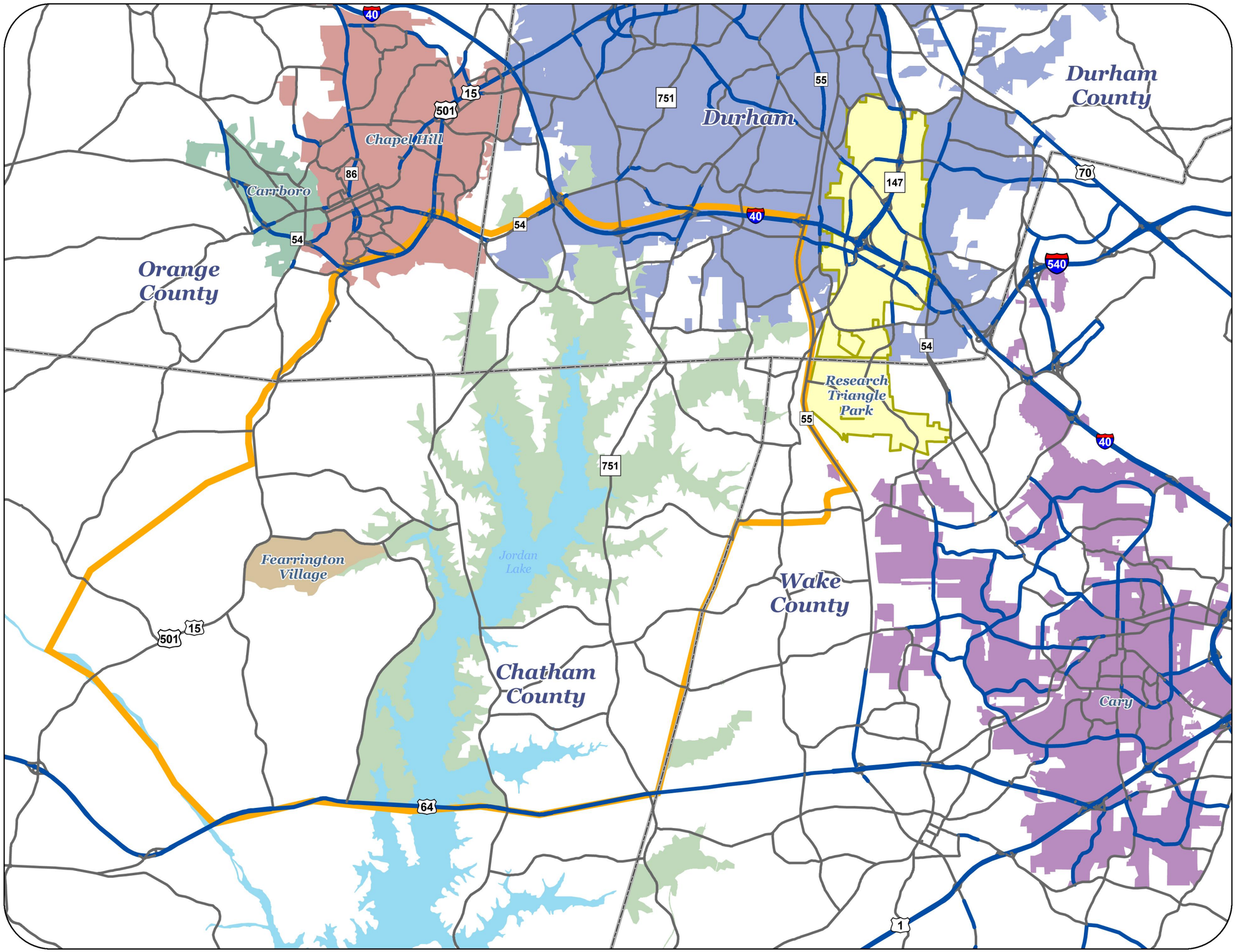
Figure 5

Triangle Model Attributes

Median



Median or Continuous Left Turn lane

No Median or Median Treatment not used for Capacity

Study Area

Lakes

Durham

Chapel Hill

Fearrington Village

Cary

Carrboro

Counties

Corps of Engineers Land

Research Triangle Park

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N W E S

0 0.5 1 2 3 Miles

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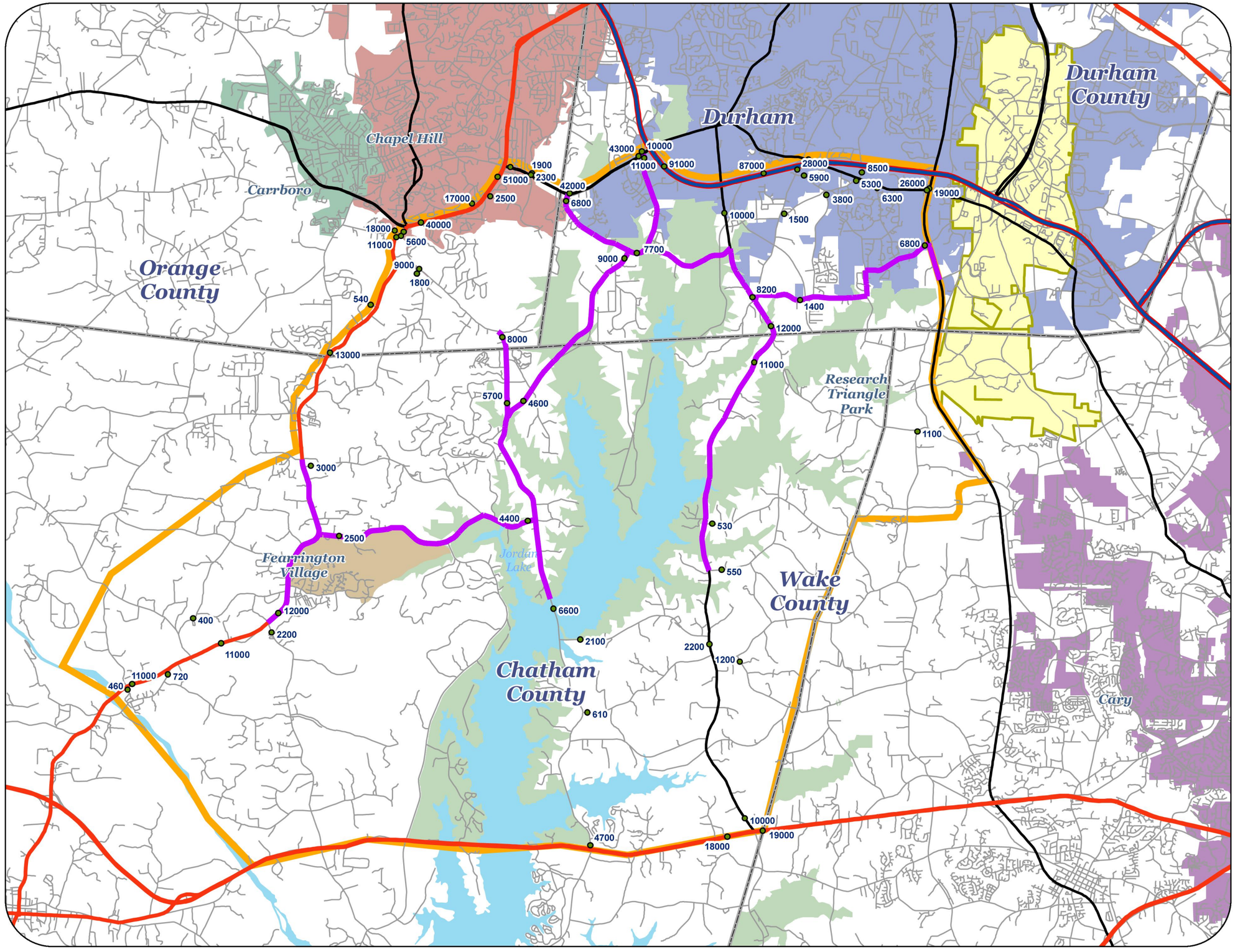
Farrington Road Corridor Study

Figure 6

2005 NCDOT AADT Traffic Count Locations



2005 AADT's
Study Corridors
Interstates
US Highways
State Highways
State Roads
Counties
Study Area
Research Triangle Park
Lakes
Durham
Chapel Hill
Fearrington Village
Cary
Carrboro
Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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Non-Motorized Facilities

Non-motorized facilities include bicycle and pedestrian routes as well as transit services. There are a limited number of these facilities and services in the corridor study area. This characteristic is consistent with the area's predominantly rural and undeveloped character.

The Durham Area Transit Authority (DATA) operates one route that runs along Sedwick Road and NC 55 in the northeastern portion of the study area. Although the Triangle Transit Authority (TTA) does not have any routes inside the study area, they do operate four routes along NC 54, just to the north of the corridor. The Chatham Transit Network (CTN) operates an "on-demand" service in Chatham County. They also operate one route that makes three trips daily to UNC Hospitals from Pittsboro and Siler City.

As mentioned, due to the rural nature of the study area, bicycle and pedestrian facilities are not common. A portion of the American Tobacco Trail runs through the study area and this facility accommodates bicyclists and pedestrians.

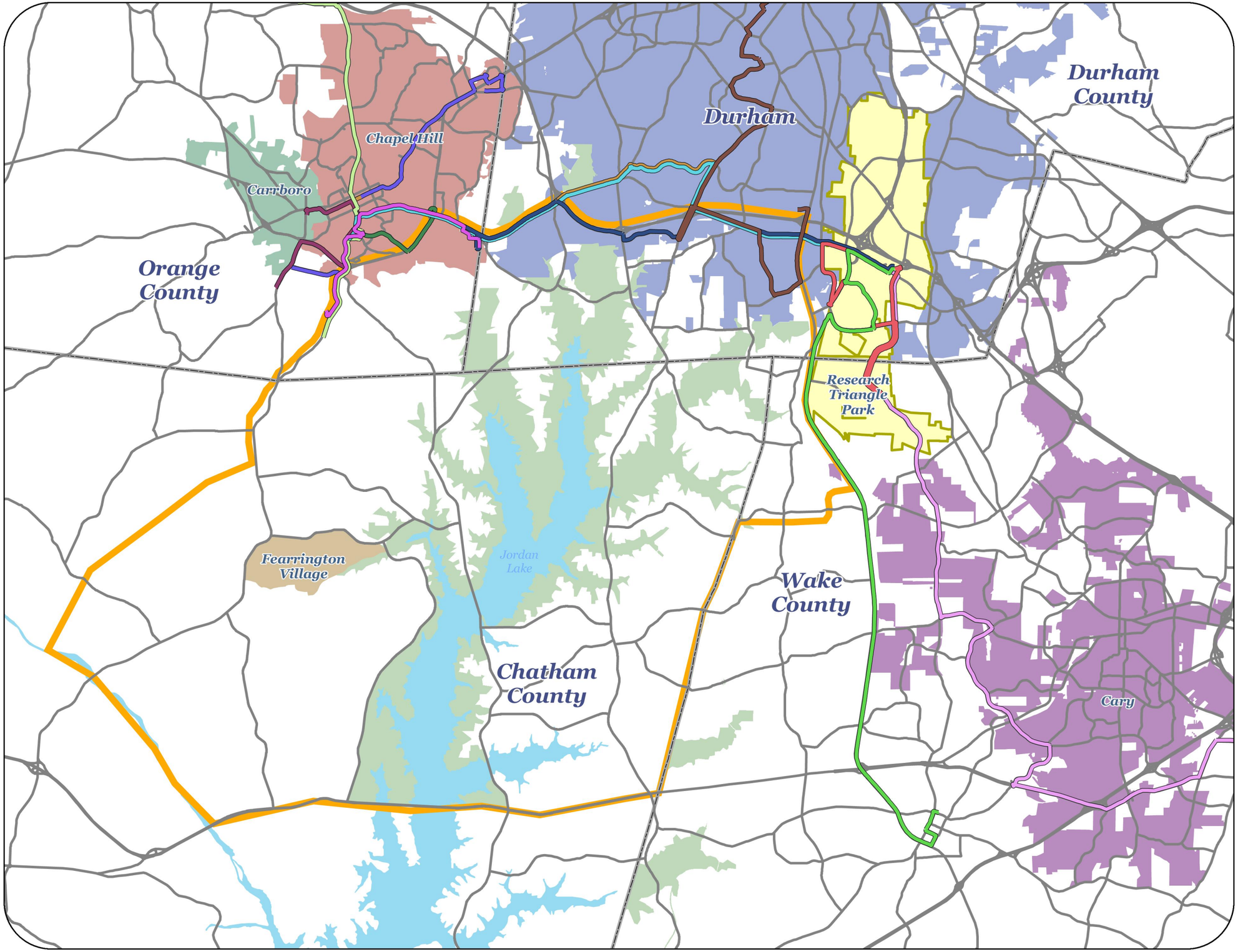
Figures 7-8 show local transit routes and bicycle and pedestrian facilities in the study area.

Farrington Road Corridor Study

Figure 7

Triangle Model Attributes

Study Area Transit Routes



- Transit Routes
- Model Roads
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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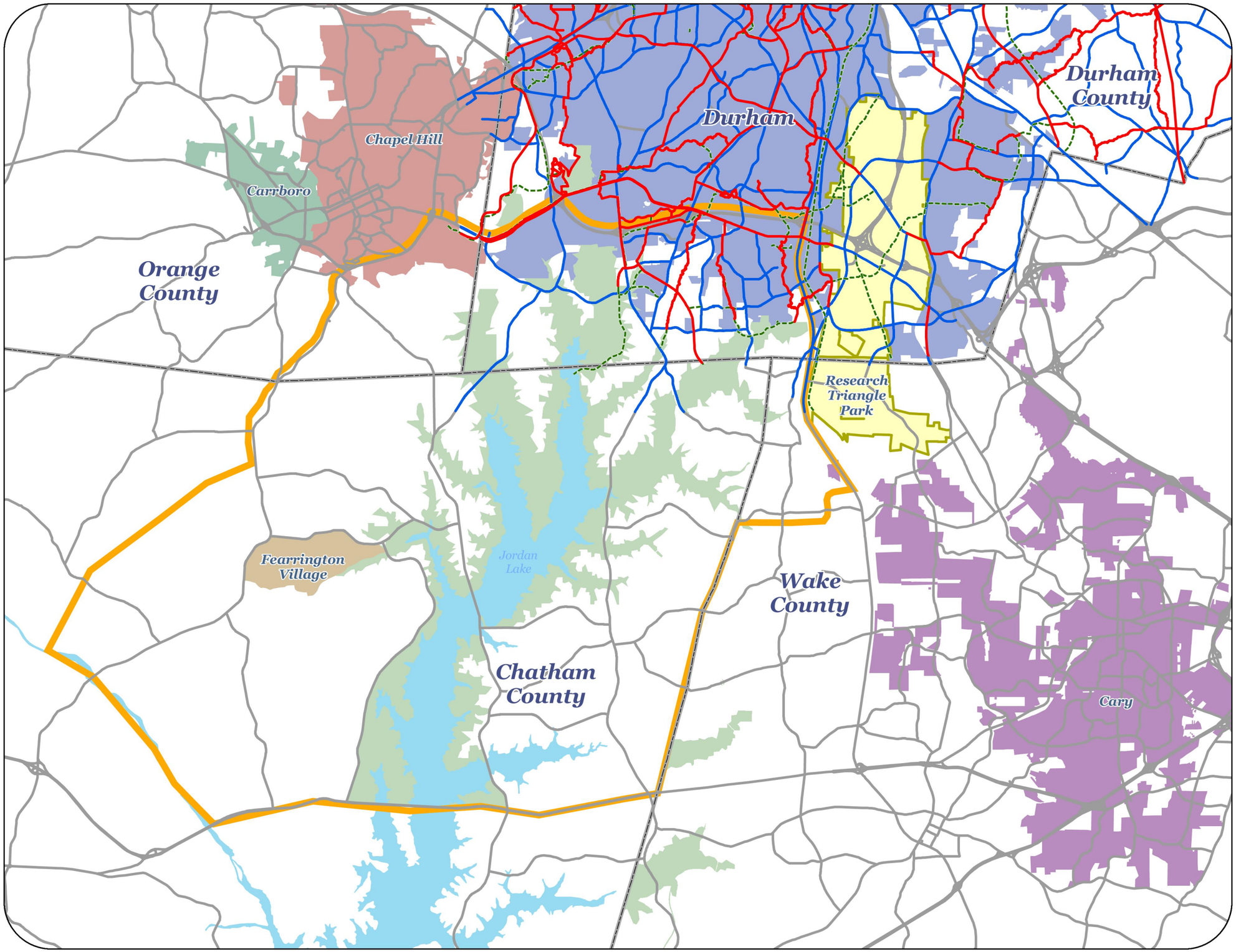
TCC 7/22/2009 Attachment 10

Farrington Road Corridor Study

Figure 8

Triangle Model Attributes

Bicycle and Pedestrian Facilities



- Trails and Greenways
- Off-Road Trail Network
- 2006 Bicycle Plan Network
- Model Roads
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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3 existing conditions

Level of Service

Level of service (LOS) is a standard used to determine the quality of service on transportation facilities. The level of service characterizes the operating conditions on a facility through traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. LOS is represented by the letters "A" through "F", with "A" representing the most favorable driving conditions and "F" representing the least favorable.

Level of service criteria vary depending on the type of facility being analyzed. Examples of criteria include percent time spent following, average travel speed, control delay per vehicle, maximum density, and maximum volume-to-capacity ratio (V/C). V/C represents congestion on a roadway and is calculated by dividing the volume (average daily traffic) of that roadway by the capacity.

For this study, two individual "types" of LOS analysis were performed: corridor LOS analysis and intersection LOS analysis.

Corridor Level-of-Service

Seventeen roadway sections were identified for corridor LOS traffic analysis for existing (and projected future) conditions. This analysis includes the collection of roadway characteristics (lanes, speeds, development type), along with current traffic counts.

Figure 1 shows corridors that were studied as part of this analysis, as well as a reference Section ID that will be used throughout the report. These corridors are also listed in **Table 1**. For each section, 48-hour traffic count data and roadway characteristic data were collected in September 2007. Field visits were also used to observe traffic patterns and issues.

The majority of the corridors in the study area are operating at LOS B or better. These results are consistent with the rural character of the area. Two corridors are operating at LOS C. The only road section whose level of service is below LOS C is Section No. 23, NC 751 (Hope Valley Road) between Scott King Road and the southern planning area boundary (PAB). This corridor has a 2007 capacity of 11,800 and a 2007 average daily traffic flow (ADT) of 10,900 for a resulting V/C ratio of 0.92, which corresponds to LOS D.

3 existing conditions

Table 1. Study Corridors

Section	Road	From	To	Functional Classification	Distance (miles)	Lanes	Median Type	Speed Limit (mph)	LOS D Traffic Capacity	2007 Traffic (average vehicles / day)	2007 V/c	2007 LOS
11	US 15-501	Southern PAB	Jack Bennett Road	Rural Principal Arterial	1.9	4	Divided	55	62,600	15,700	0.25	A
12	US 15-501	Jack Bennett Road	Northern PAB	Rural Principal Arterial	1.4	4	Divided	55	62,600	17,300	0.28	A
13	Jack Bennett Rd	US 15-501	Farrington Point Road	Rural Local	4.1	2	None	45/55	11,900	3,300	0.28	A
14	Farrington Rd	Southern PAB	Lystra Road	Rural Major Collector	1.4	2	None	55	11,800	5,900	0.5	B
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	Rural Major Collector	2	2	None	45/55	10,500	6,000*	0.57	B
16	Old Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	Rural Major Collector	3.7	2	None	45/55	9,400	4,300	0.46	B
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	Rural Major Collector	1.5	2	None	45	12,400	5,700	0.46	B
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	Rural Major Collector	1.6	2	None	45	9,500	5,300	0.56	B
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	Urban Collector	1.7	2	None	45	15,300	8,000	0.52	B
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	Urban Collector	0.4	2	None	45	15,300	7,700	0.5	B
21	Stagecoach Rd	Farrington Road	NC 751	Rural Major Collector	1.6	2	None	45	9,500	6,700	0.71	C
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	Urban Minor Arterial	1	2	None	55	12,800	9,000	0.7	C
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	Rural Major Collector	5.2	2	None	55	11,800	10,900	**0.92**	**D**
24	Scott King Road	NC 751	Grandale Drive	Urban Collector	2.1	2	None	35/45	9,500	1,700	0.18	A
25	Grandale Dr	Scott King Road	Sedwick Road	Urban Collector	0.5	2	None	35	9,500	4,000	0.42	B
26	Sedwick Rd	Grandale Drive	NC 55	Urban Collector	1.2	2	None	25	12,500	6,800	0.54	B
27	NC 55	Sedwick Road	Alexander Drive	Urban Principal Arterial	0.7	5	TWLTL	50	39,700	15,400	0.39	B

V/C is volume-to-capacity (ADT/Capacity). TWLT is a two-way left turn lane (center lane in roadway). *

Historic Traffic Growth

NCDOT traffic counts from 1990 through 2005 were analyzed in this study to better understand traffic growth in the area. These counts are presented in **Table 2**. Historical patterns indicate that the study corridors have experienced significant traffic growth since 1990, with traffic on many small rural roads increasing over 5% a year and traffic in some locations increasing over 10%. Since this area is expected to continue to experience significant growth in housing, there is no reason to believe that traffic demand will dramatically slow or reduce in the future.

Table 2. Historic AADT Growth in Study Corridors

Section	Road	From	To	Count Location	NCDOT Traffic Survey Count ID	Average Yearly Growth* (1990-2005)	1990	1992	1994	1997	1999	2001	2003	2005
11	US 15-501	Southern PAB	Jack Bennett Road	South of Jack Bennett Road	1800069	3.80%	--	10,000	12,000	13,000	13,000	14,000	--	--
12	US 15-501	Jack Bennett Road	Northern PAB	North of Manns Chapel Road	1800921	2.20%	15,000	15,000	18,000	18,000	19,000	20,000	20,000	--
13	Jack Bennett Rd	US 15-501	Farrington Point Road	East of 15-501	1800923	**5.00%**	1,200	1,500	2,100	2,300	2,300	2,400	2,400	2,500
14	Farrington Rd	Southern PAB	Lystra Road	South of Jack Bennett Road	1800918	**8.10%**	--	2,400	2,700	3,500	4,600	5,700	5,800	6,600
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	N/A	N/A	N/A	No historic count on or near this corridor section							
16	Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	North of Farrington Road	1800917	**7.80%**	1,500	2,300	2,700	3,300	3,200	3,300	3,800	4,600
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	North of Farrington Road	1800920	**7.20%**	2,000	2,200	2,500	3,800	4,000	5,000	5,000	5,700
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	N/A	N/A	N/A	No historic count on or near this corridor section							
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	South of NC 54	3100499	**8.80%**	3,100	3,400	5,600	--	7,200	8,200	--	11,000
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	West of Stagecoach Road	3100505	**8.70%**	2,200	2,400	4,200	5,500	7,200	7,900	--	7,700
21	Stagecoach Rd	Farrington Road	NC 751	N/A	N/A	N/A	No historic count on or near this corridor section							
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	North of Scott King Road	3100734	**10.60%**	1,800	2,200	2,500	3,400	5,500	7,200	8,200	8,200
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	South of Scott King Road	3100514	**10.40%**	3,600	3,500	3,400	5,200	7,000	8,800	9,900	12,000
24	Scott King Road	NC 751	Grandale Drive	East of NC 751	3100515	**10.80%**	300	300	520	600	1,100	1,500	1,400	1,400
25	Grandale Dr	Scott King Road	Sedwick Road	N/A	N/A	N/A	No historic count on or near this corridor section							
26	Sedwick Rd	Grandale Drive	NC 55	West of NC 55	3100528	**6.60%**	2,600	3,700	4,500	5,300	6,300	7,200	7,900	--
27	NC 55	Sedwick Road	Alexander Drive	South of Sedwick Road	3100726	**5.80%**	6,700	7,200	9,800	--	12,000	14,000	14,000	--

Based on average annual increase using available counts

Intersection Level-of-Service (LOS) Analysis

Nine intersections were identified for intersection operational analysis. Commute period data were collected in the morning (AM) and afternoon (PM) peak hours. Turning movement counts were performed by Traffic Survey Services, Inc. on typical weekdays in the morning (7:00 to 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) time periods at the following intersections:

- US 15-501 at Jack Bennett Road — September 18, 2007
- Farrington Point Road at Lystra Road — September 18, 2007
- Farrington Point Road/Old Farrington Point Road at Mt. Carmel Road — September 13, 2007
- Farrington Mill Road/Farrington Road at Barbee Chapel Road — September 13, 2007
- Farrington Road at Stagecoach Road — September 13, 2007
- Stagecoach Road at Hope Valley Road (NC 751) — September 11, 2007
- Hope Valley Road (NC 751) at Fayetteville Road — September 11, 2007
- NC 55 at Sedwick Road — September 12, 2007
- NC 55 at T.W. Alexander Drive — September 12, 2007

All turning movement counts were performed while public schools in Durham and Chatham County were in session. For these intersections, operational and geometric data were collected in the field in September 2007. This data was used to analyze current intersection LOS for study intersections in *SYNCHRO* software.

Capacity analyses were performed for the AM and PM peak hours for existing (2007) traffic conditions using *SYNCHRO* (Version 7) software to determine the operating characteristics of the adjacent road network.

3 existing conditions

For intersection analysis, capacity is combined with LOS in a relationship table to describe the operating characteristics of a road segment or intersection. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by *SYNCHRO* Version 7 or computable using methodology published in the *Highway Capacity Manual.* Results between LOS A and LOS C for the side street approach are assumed to represent short delays. For descriptive purposes, results between LOS D and LOS E for the side street approach are assumed to represent moderate delays, and LOS F for the side street approach is assumed to represent long delays. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. **Table 3** lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections, as well as the unsignalized operational descriptions assumed herein.

Table 3. Level-Of-Service (LOS) Control Delay Thresholds

Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [seconds of delay per vehicle]	Unsignalized Intersections – Average Control Delay [seconds of delay per vehicle]	
A	≤ 10	≤ 10	
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	Short Delays
D	> 35 – 55	> 25 – 35	
E	> 55 – 80	> 35 – 50	Moderate Delays
F	> 80	> 50	Long Delays

Capacity analyses were performed for the existing (2007) traffic conditions for the following intersections:

- US 15-501 at Jack Bennett Road
- Farrington Point Road at Lystra Road
- Farrington Road and Stagecoach Road at Mt. Carmel Road

- Farrington Mill Road/Farrington Road at Barbee Chapel Road
- Hope Valley Road (NC 751) at Fayetteville Road
- Stagecoach Road at Hope Valley Road (NC 751)
- Farrington Road at Stagecoach Road
- NC 55 at T.W. Alexander Drive
- NC 55 at Sedwick Road

Table 4 summarizes the LOS and delay (seconds per vehicle) for all of the study intersections for the existing traffic conditions.

Table 4. Existing (2007) Level-of-Service (LOS) Summary

Intersection	Signalized	AM Peak-Hour LOS (Delay in seconds)	PM Peak-Hour LOS (Delay in seconds)
US 15-501 and Jack Bennett Road	Yes	A (9.0)	B (10.1)
Farrington Point Road and Lystra Road	Yes	C (20.6)	B (14.5)
Farrington Point Road/Old Farrington Point Road and Mt. Carmel Road	No	Short delays for minor street approach	Moderate delays for minor street approach
Farrington Mill Road/Farrington Road and Barbee-Chapel Road	No	Moderate delays for minor street approach	Long delays for minor street approach
Farrington Road and Stagecoach Road	No	Long delays for minor street approach	Long delays for minor street approach
Stagecoach Road and Hope Valley Road (NC 751)	Yes	D (43.0)	B (19.8)
Hope Valley Road (NC 751) and Fayetteville Road	Yes	B (10.7)	C (21.4)
NC 55 and Sedwick Road	Yes	B (19.6)	C (29.8)
NC 55 and T.W. Alexander Drive	Yes	C (24.3)	C (24.5)

Summary of Existing Intersection Deficiencies

All of the studied intersections operate at an acceptable LOS. The following signalized intersections have significant queuing and may need additional vehicle storage (i.e. longer the turn lanes) to decrease vehicle queue lengths:

US 15-501 and Jack Bennett Road

- The westbound left-turn lane queue on Jack Bennett Road exceeds existing storage lengths during the PM peak hour.

Farrington Point Road and Lystra Road

- The eastbound left-turn lane queue on Lystra Road exceeds existing storage lengths during the AM peak hour

Farrington Point Road and Stagecoach Road

- Westbound Stagecoach Road has queuing problems during peak hours due to poor sight distance for left-turning vehicles (of oncoming traffic from northbound Farrington Road).

Stagecoach Road and Hope Valley Road (751)

- The eastbound left-turn lane queue on Stagecoach Road exceeds existing storage lengths during the AM and PM peak hours.

NC 55 and T.W. Alexander Drive

- The northbound right-turn lane and southbound left lane queues on NC 55 exceed existing storage lengths during the AM peak hour.
- The westbound left-turn lane queue on T.W. Alexander Drive exceeds existing storage length during the PM peak hour.

Travel Pattern Analysis

Travel patterns in the study area were reviewed to identify prevalent traffic movements that currently affect the roads in the study area. This analysis drew from available resources from the Census, DCHC

Metropolitan Planning Organization (MPO), and the Triangle Regional Model (TRM) to determine regional traffic patterns from western Chatham County and the Jordan Lake area to Research Triangle Park (RTP). Specific data included in the review are:

- County-to-County Work Flows from the 2000 Census journey-to-work supplemental survey (i.e. "Census long form"),
- Travel patterns identified in the 2006 Triangle Cordon Survey (conducted on US 64 west of Pittsboro),
- TRM base year (2005) model traffic flows from Chatham County,
- TRM base year (2005) model select link analysis (to be prepared and provided by DCHC MPO), and
- 2006 Triangle Household Survey work-trip flows and all-trip flows (to be prepared and provided by DCHC MPO).

The shape and location of Jordan Lake affects the intensity of travel patterns in the few east-west corridors that cross or neighbor it. Interstate 40 and NC 54 are the predominant east-west routes north of the watershed, while U.S. Highway 64 crosses Jordan Lake via a bridge at the southern edge of the study area. Stagecoach Road and connecting streets cross through the watershed at the north end of the lake. There are no roads crossing Jordan Lake in the three miles separating Stagecoach Road and Highway 64. The gap in the roadway network, combined with the urbanization of northwest Chatham County, is intensifying vehicle traffic on Stagecoach Road.

County-to-County Work Flows

County-to-County work flow data were compiled from Census 2000 responses to the long-form (sample) questions about where people work. These files describe the county-to-county work travel patterns, detailing the counties people live and work in. Analysis of this data can help identify some of the predominant travel patterns through the region and the study area.

According to Census 2000 County-to-County worker flow files, Chatham County "produces" (those people living in Chatham County and going to work either in Chatham County or elsewhere) 24,657 work trips, and "attracts" (those people working in Chatham County and living in Chatham County or elsewhere) 16,901 work trips. 28% of the produced trips (6,945) travel to Durham or Orange Counties from Chatham County, out of a total of 13,639 (55%) that travel outside of the County. For the work "attractions", 5,883 (or 35%) travel into Chatham County for work, and, of that total, 1,141 (or 7%) come from Durham or Orange Counties.

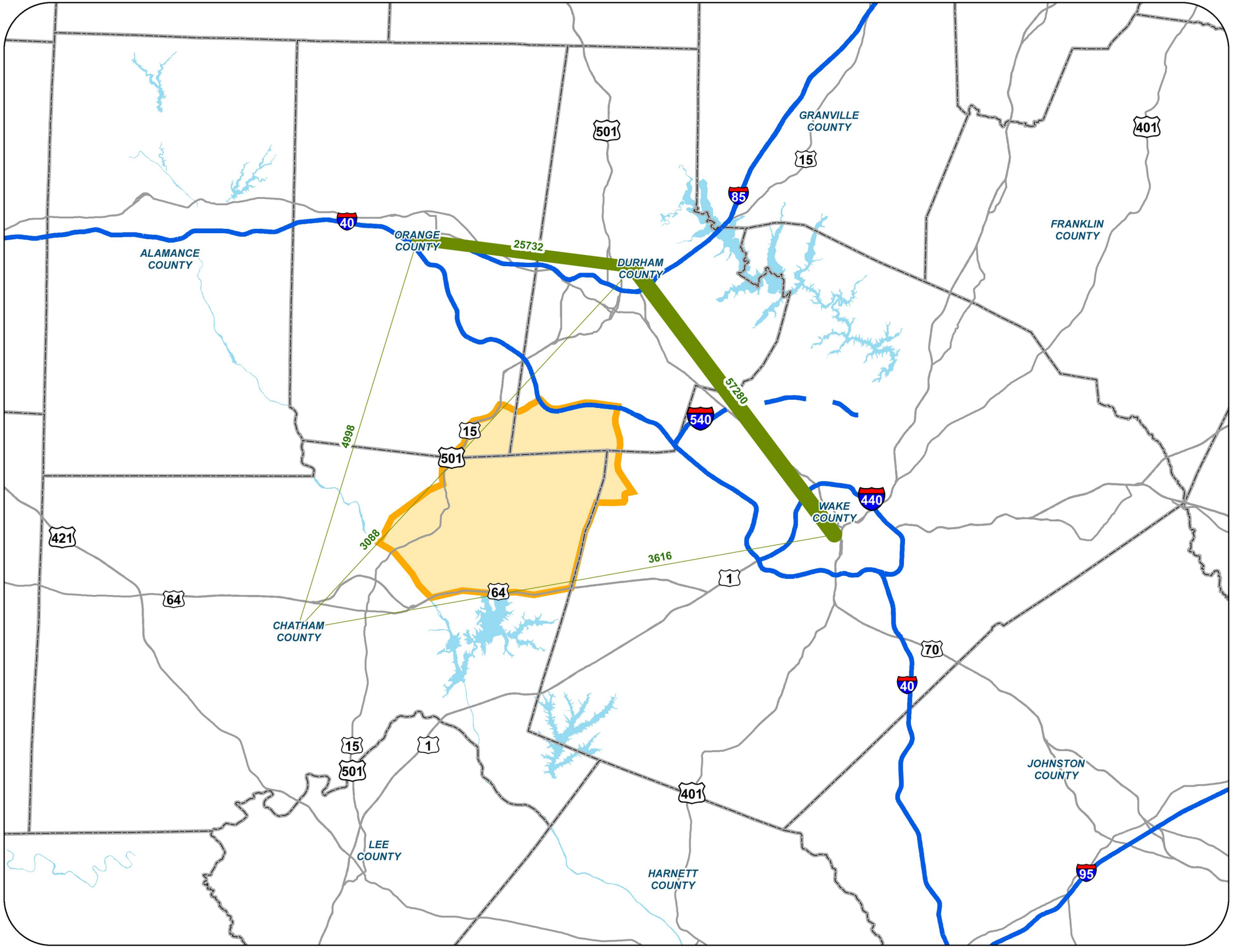
Figure 9 shows the Journey-to-Work flows for the study area.

TCC 7/22/2009 Attachment 10

Farrington Road Corridor Study

Figure 9

Journey to Work Flows



Total Work Trips To/From

- 0 - 5000
- 5001 - 10000
- 10001 - 20000
- 20001 - 40000
- 40001 - 60000
- Study Area
- Interstates
- US Highways
- Lakes
- Counties

November 25, 2008

N W E S

0 2 4 8 12 Miles

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Triangle Cordon Survey Flows

A cordon survey collects travel pattern information including origins and destinations at the perimeter of the study area. A cordon survey provides more detailed information for specific highway corridors than is normally possible using other survey methods.

The Institute for Transportation Research and Education (ITRE) worked with ETC Institute consultants in fall 2006 to conduct 13 cordon station surveys surrounding the Raleigh-Durham-Chapel Hill metropolitan planning area. Survey data collected at the cordon stations included trip purpose, origin and destination information, and traffic characteristics of travelers entering the region via major non-interstate facilities.

Of these 13 locations, two survey stations are particularly relevant to the Farrington Road Corridor Study: 1 south of Pittsboro and US 64 west of Pittsboro. Outside of local traffic (i.e., Fearrington Village) and traffic from Pittsboro, these two locations capture the primary sources of any external traffic from the south and west into the Farrington Road Corridor study area.

Tables 5 and 6 show the primary destinations (greater than 1% of total traffic) of travelers entering the Triangle Region at US 64 and US 15-501. **Figures 10 and 11** display the major destinations graphically. The majority of traffic from US 64 would not use the Farrington Road corridor because the travel patterns of the corridor make reaching desired destinations difficult. The most probable destinations requiring use of the corridor are Northern Chatham County and the Durham area, which make up approximately 8% (500 vehicles) of the 6,500 daily vehicles entering/exiting the region at this location. Trips entering the region from US 15-501 are more likely to use the corridor, based on their destinations, but these trips, which are destined for Durham and Western Chatham County, only comprise 12% (333 vehicles) of the 2,800 daily vehicles using this location

Based on this information, trips from outside the area are not expected to create significant demand on the Farrington Road Corridor. Therefore, future travel patterns and improvements should focus on trips that are generated within the region.

Table 5. Destination of Trips Entering the Region via US 64 West of Pittsboro

Destination	US 15 Trips
Chapel Hill Area	31%
Pittsboro Area	30%
Alamance	14%
Durham Area	7%
West Chatham	5%
Northern Chatham County	4%
US 64 West of Pittsboro	3%

Table 6. Destination of Trips Entering the Region via US 15-501 South of Pittsboro

Destination	US 64 Trips
Pittsboro Area	30%
Raleigh Area	13%
Chapel Hill Area	12%
US 64 East of Raleigh	11%
Cary/Apex	9%
Durham Area	4%
Northern Chatham County	4%
Lee County/Sanford	3%
North Wake County	3%
Area east of Jordan Lake	3%

Figure 10. Triangle External Trip Survey – US 64 West of Pittsboro

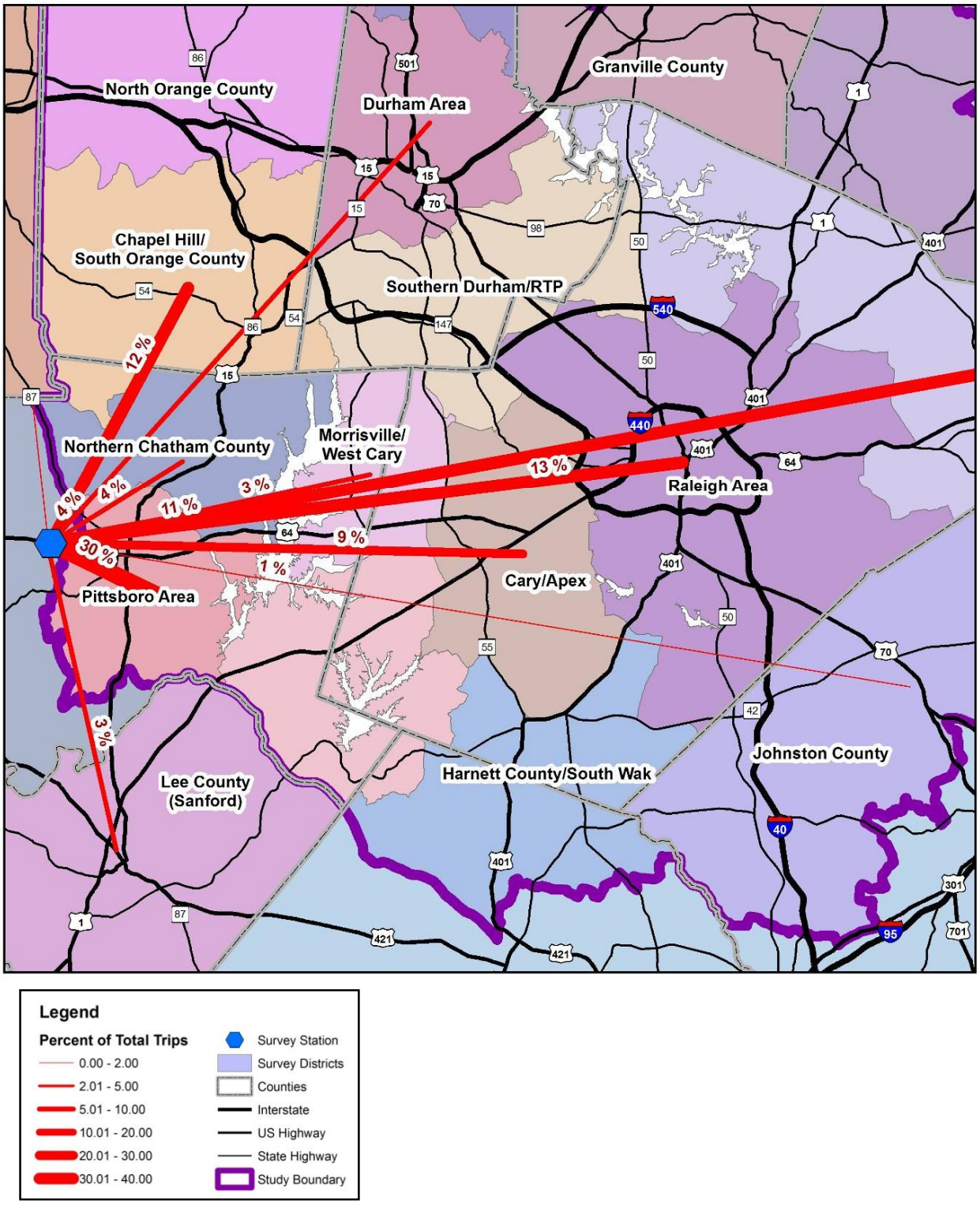
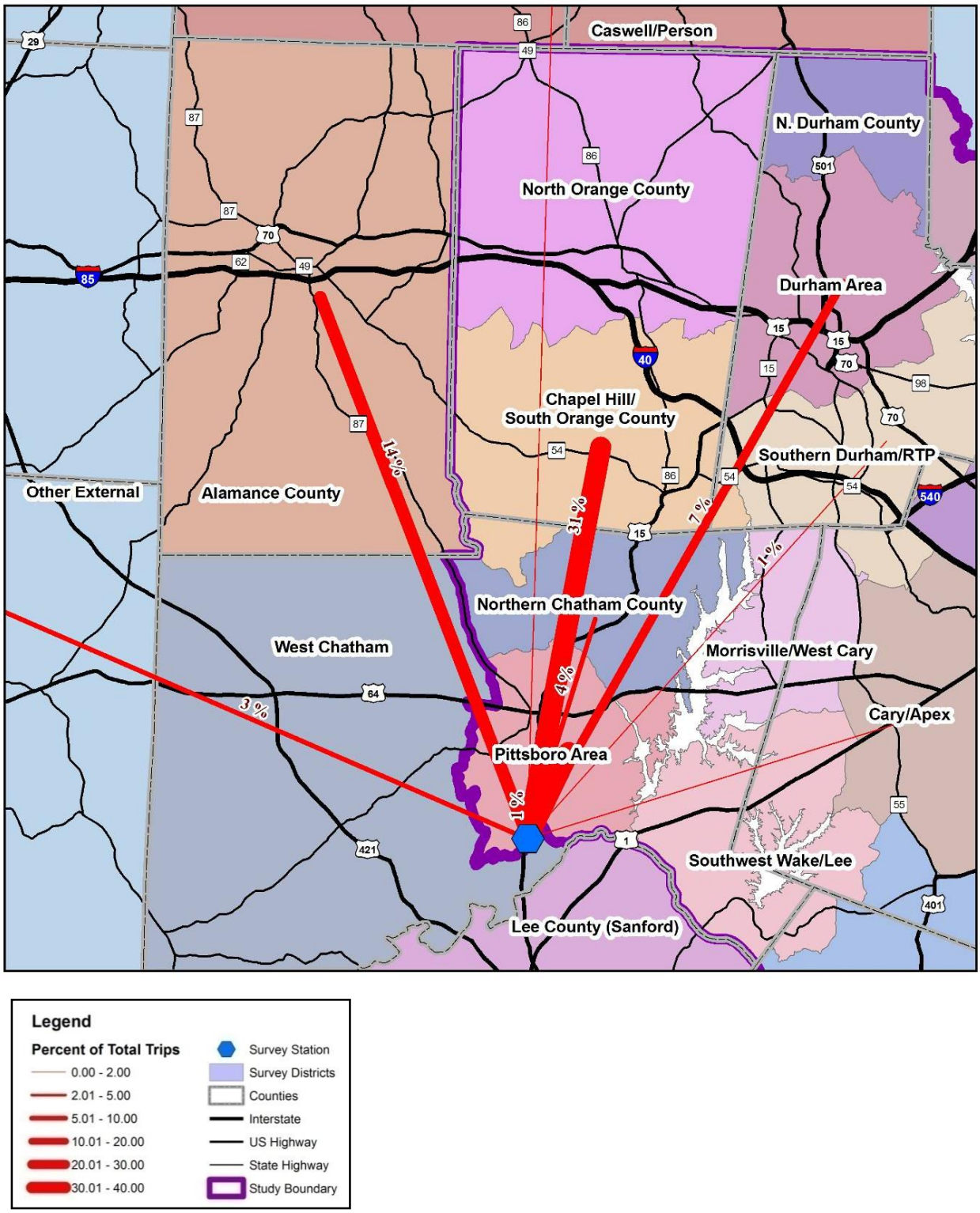


Figure 11. Triangle External Trip Survey – US 15/501 South of Pittsboro



Select Link Analysis

Select link analysis is a tool used to determine where traffic is coming from and going to on a select road segment or link. It is used to retrieve information about network conditions (on a 24-hour basis). It does not present the total volume for model links, only those which pass through a particular section.

DCHC MPO and Kimley-Horn prepared a number of Select Link Analysis model runs using the Triangle Regional Model (TRM) for roadway segments in the study area. Segments that corresponded to corridors in this study include:

- Farrington Mill Road
- Farrington Road
- US 15-501
- Jack Bennett Road
- Scott King Road
- NC 55.

Figures 12-17 on the following pages show the results of the select link analysis for each corridor. These figures show the location of each of the select link analysis and the distribution of trips (by percentage of total trips on the subject link). For example, in **Figure 13**, the select link analysis is Farrington Road between Stagecoach Road and Barbee Chapel Road. By definition, 100% of the select link volume goes through this section. Looking to the East, 66% of this traffic is either coming from or going to Stagecoach Road. The other 34% is heading North on Farrington Road. Of the 66% using Stagecoach Road, 22% heads south on NC 55.

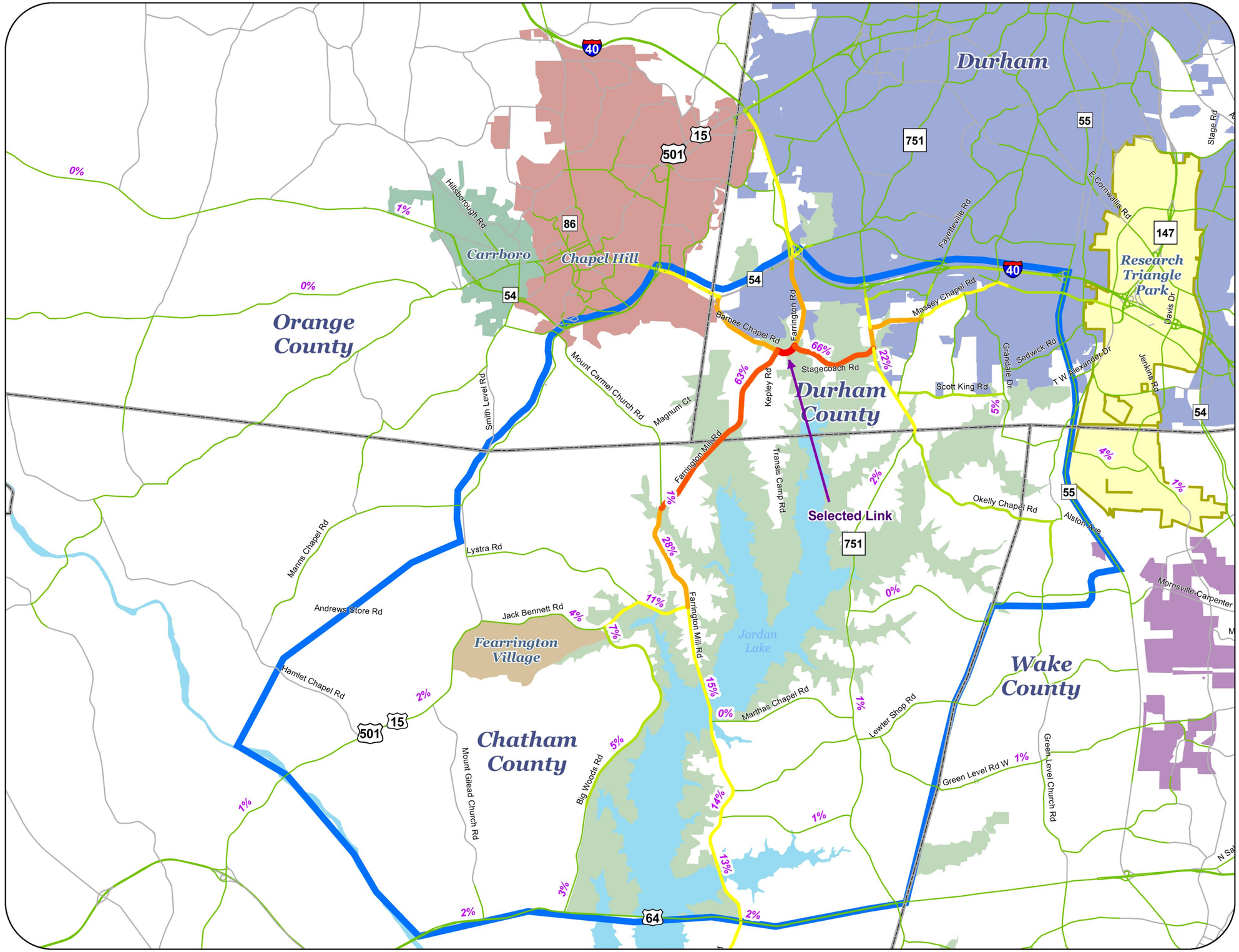
In general, the results of the select link analysis indicate that the majority of traffic traveling on the Farrington Road/Farrington Mill Road corridors is local in nature. For example, in **Figure 14**, traffic to/from the south is mostly from the area north of US 64, west of Cary, and east of Jordan Lake. Traffic to/from the North is nearly equally split between Farrington Mill Road and Mount Carmel Church Road, with the primary destinations being Chapel Hill and southwest Durham. A very small percentage of traffic from major highways (US 15-501, NC 55) traveled the study corridors, consistent with the results of the Triangle Cordon Survey Flow analysis.

Based on this analysis, the majority of impact on these facilities will be caused by local development pressures within the study area. Future Year (2035) Corridor Analysis will test the effect of local development on the transportation system, and present additional select link analyses to determine the magnitude of shifts in traffic as major highways bordering the study area experience increases in traffic.

Farrington Road Corridor Study

Figure 12

Select Link Analysis Farrington Rd.



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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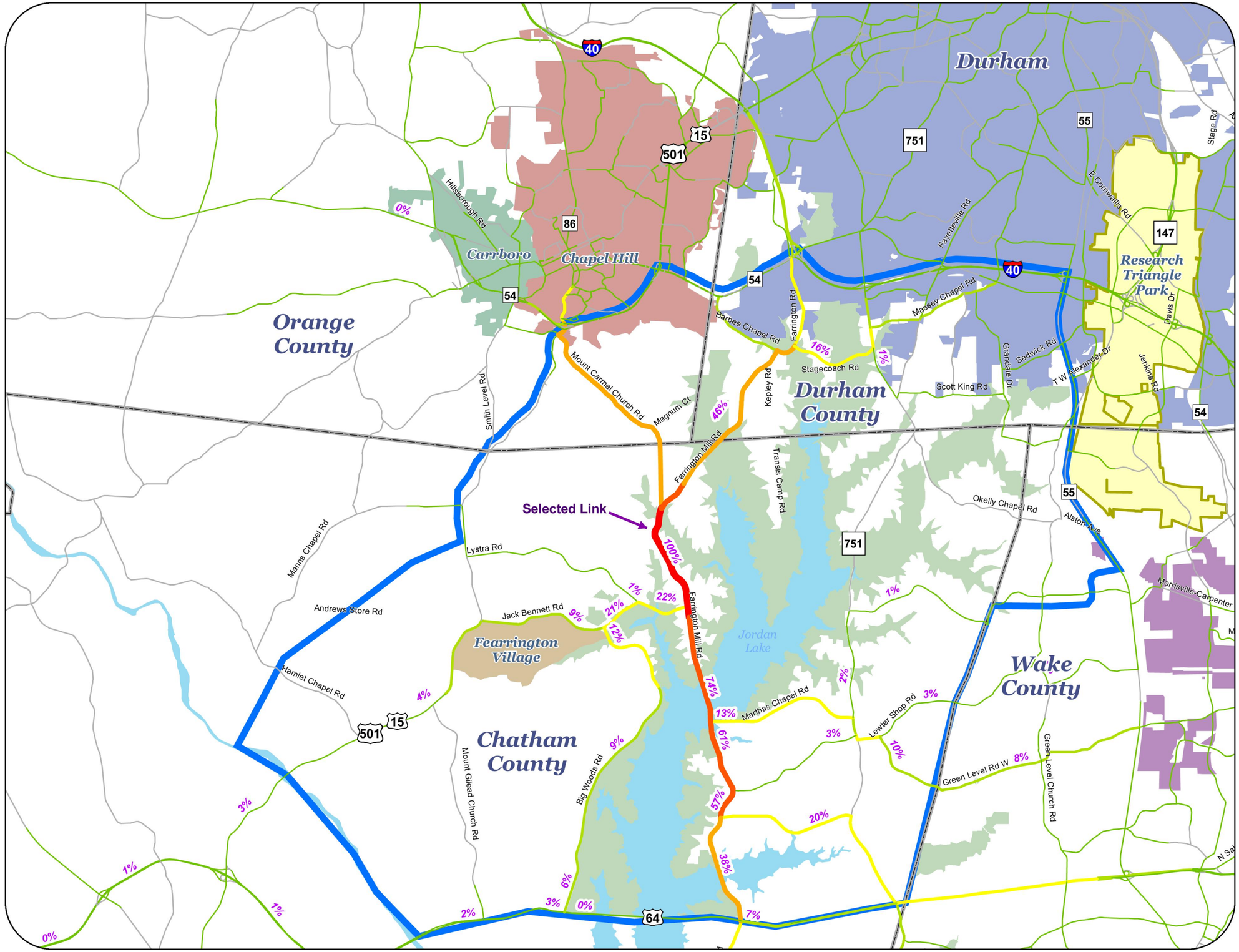
Farrington Road Corridor Study

Figure 13

Select Link Analysis
Farrington Mill Rd



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N
W E
S

0 0.5 1 2 3 Miles

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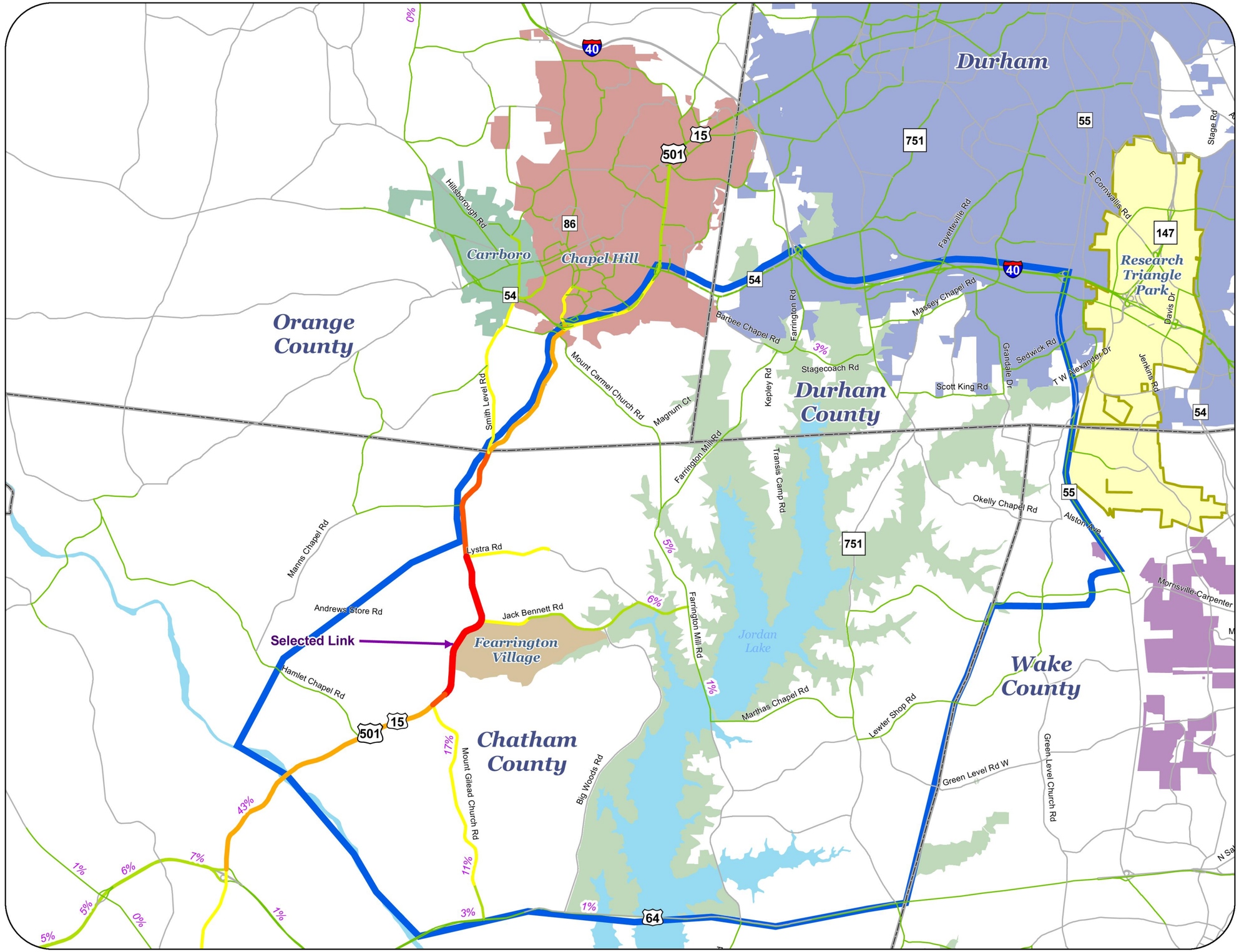
Farrington Road Corridor Study

Figure 14

Select Link Analysis
US 15/501



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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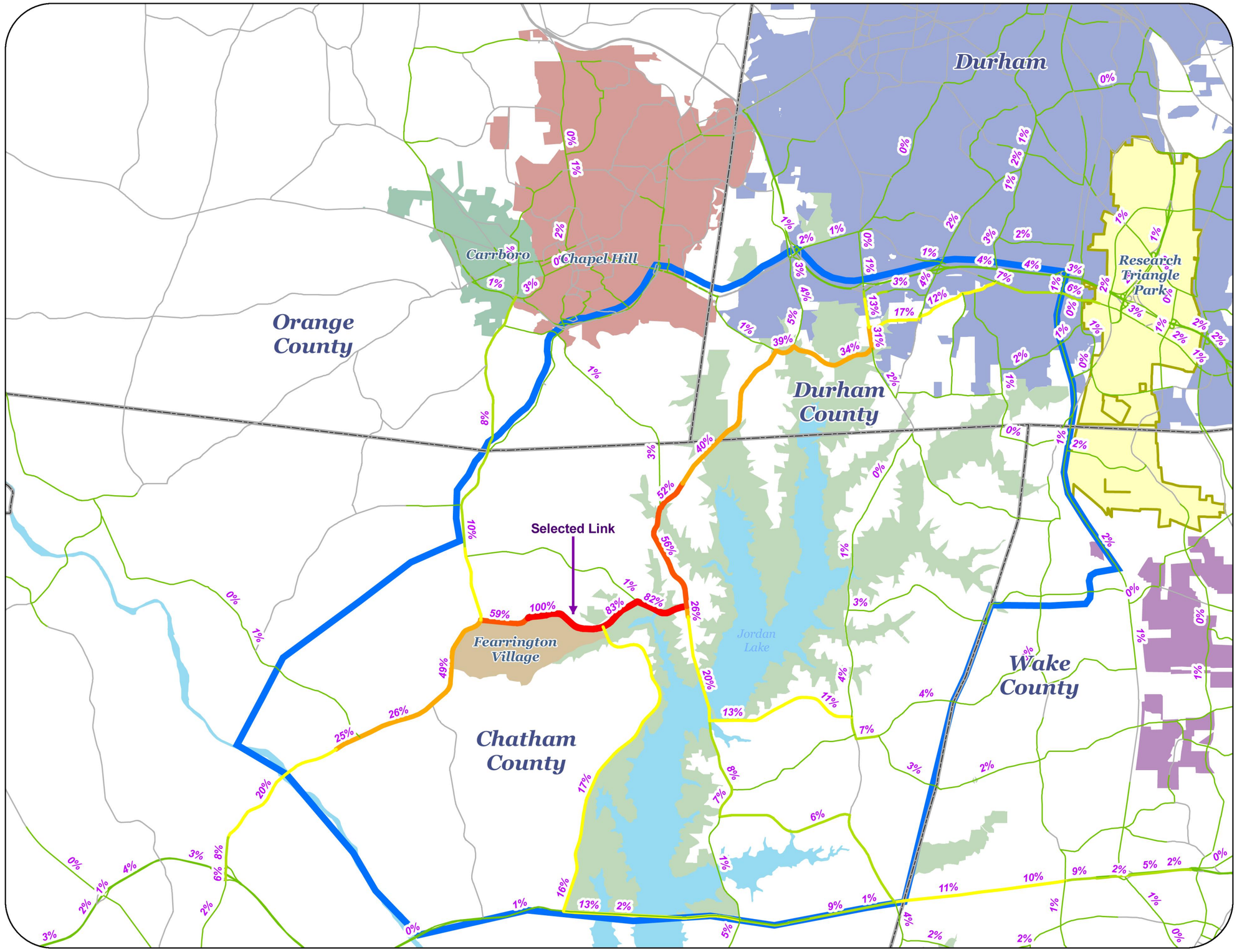
Farrington Road Corridor Study

Figure 15

Select Link Analysis
Jack Bennett Rd



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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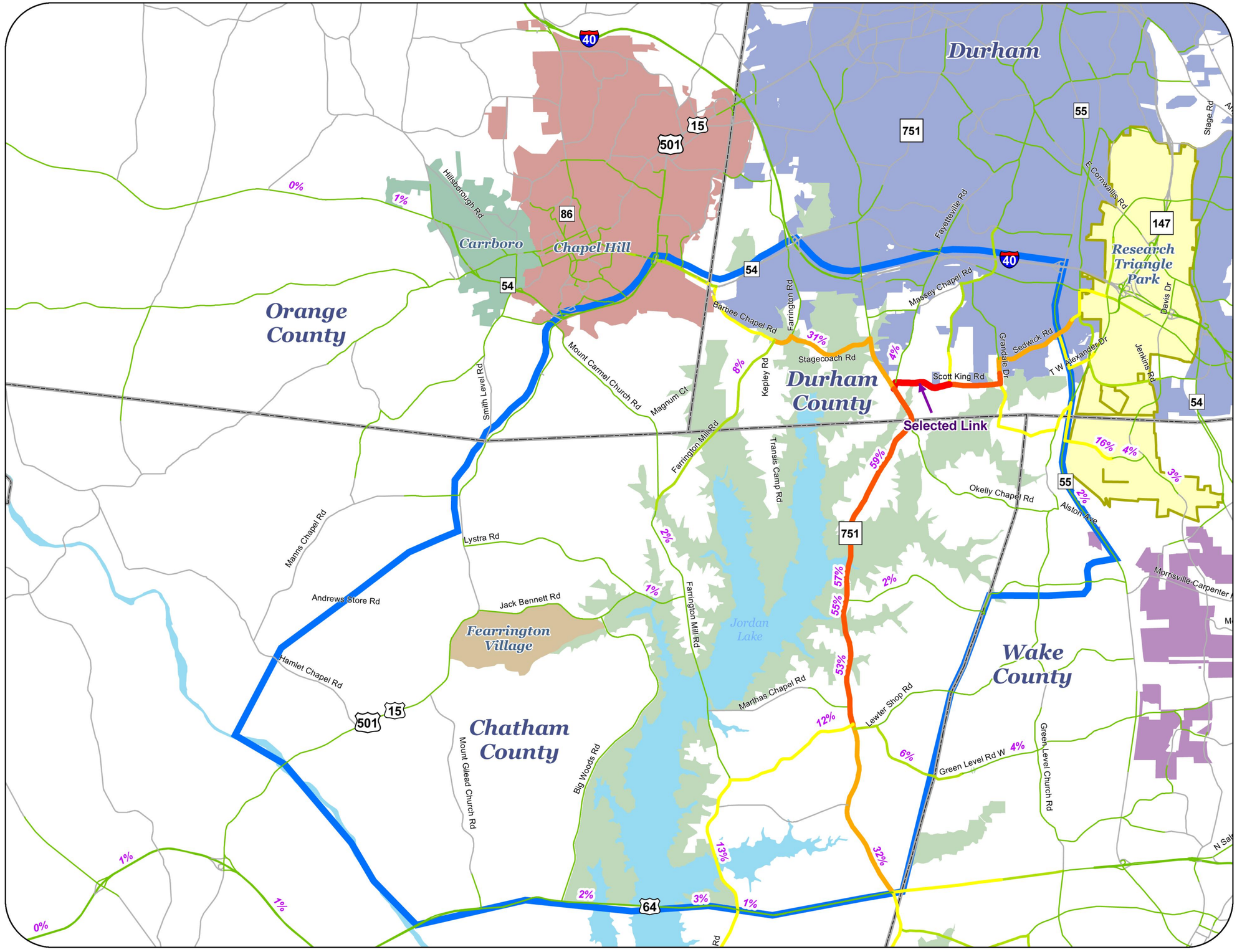
Farrington Road Corridor Study

Figure 16

Select Link Analysis Scott King Road



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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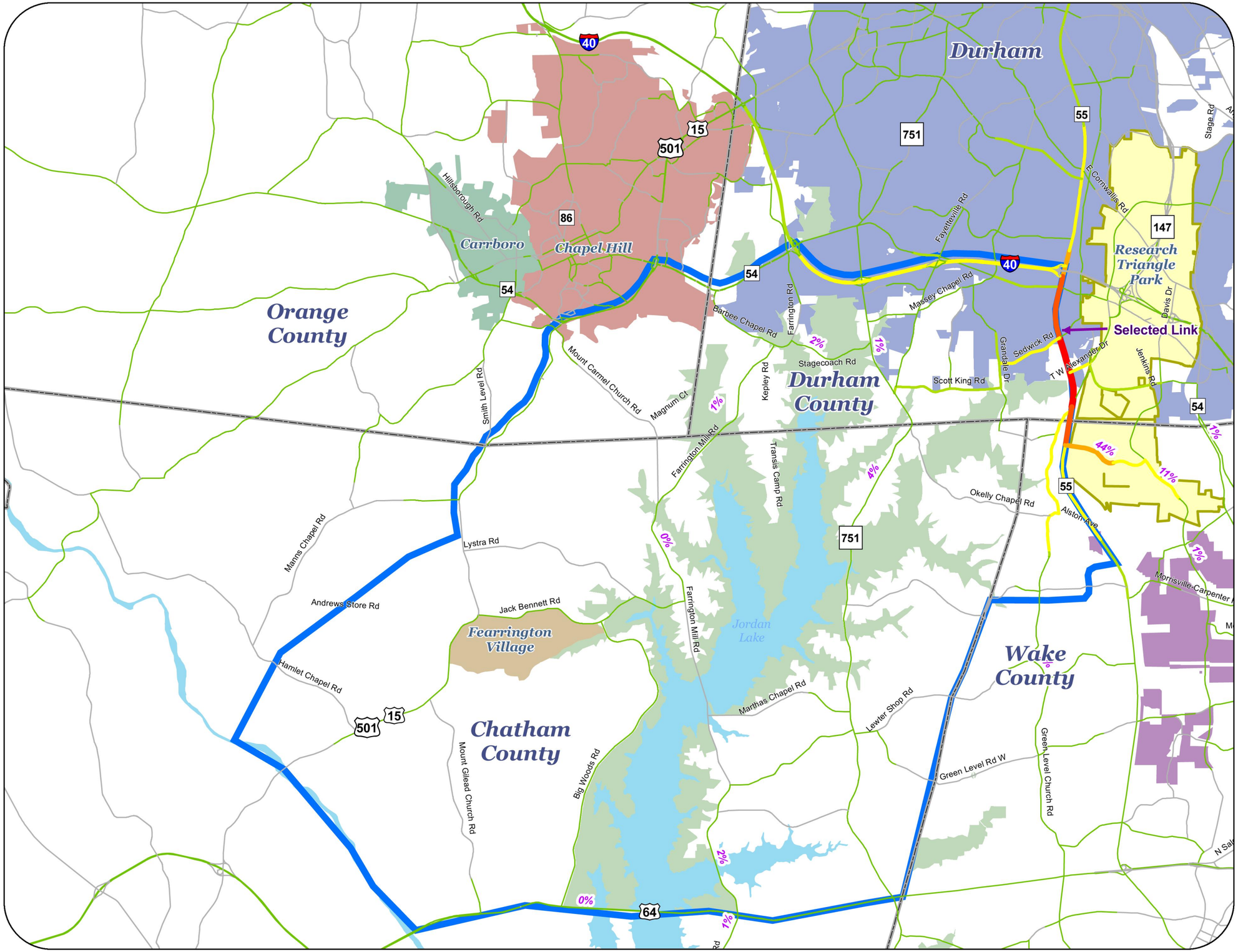
Farrington Road Corridor Study

Figure 17

Select Link Analysis
NC 55



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N
W E
S

0 0.5 1 2 3 Miles

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District Flow Analysis

DCHC MPO provided daily and peak period origin-destination (O-D) matrices at the district level from the Triangle Regional Model (TRM). For the TRM, the region is divided into 21 districts representing different parts of the area. For example, the portion of Chatham County in the regional model is considered one district, while the western and southern portions of Wake County are divided into two districts. Durham County is divided into six districts which are labeled Northern, Eastern, Central, Downtown, Southwest, and Research Triangle Park. Orange County is divided into four districts which are labeled Northern, Southeast, Southwest, and Chapel Hill-Carrboro.

For the Farrington Road analysis, these 21 TRM districts were grouped into 14 super-districts. For example, Southeast Orange County was combined with Chapel-Hill-Carrboro. O-D data from the Triangle Regional Model were aggregated to these super-districts and are presented in **Table 7**. This table shows that the majority of trips to and from Chatham County are internal (63%). Trips to the Chapel Hill/Carrboro area are also prominent (14%), and are expected to use the US 15-501 corridor. Trips to Western Wake (Cary/Apex) comprise 8% of trips, and are expected to use the US 64 corridor. Southwest Durham County and RTP make up 5% and 2% of the trips, respectively (approximately 7% or 12,400 trips combined). These trips are the most likely to use the Farrington Road Corridor to avoid future congestion on US 15-501, US 64, and I-40.

Table 7. Triangle Regional Model District Flows to and from Chatham County

Super-District	Trips to/From Chatham County	% of Total
Chatham County	110,574	63%
Chapel Hill/Carrboro Area	24,403	14%
West Wake (Cary/Apex)	13,576	8%
Southwest Durham County	8,731	5%
South Wake (Holly Springs/Fuquay Varina)	4,972	3%
Research Triangle Park	3,721	2%
Central Durham	2,532	1%
Raleigh (Inside the Beltine)	2,040	1%
Northern Durham /Durham County	1,267	1%
North/Eastern Wake County	1,229	1%
Southwest Orange County	1,114	1%
Northern Orange County	635	0%
Johnston/Harnett County	462	0%
Granville/Franklin County	116	0%
Total	**175,372**	**100%**

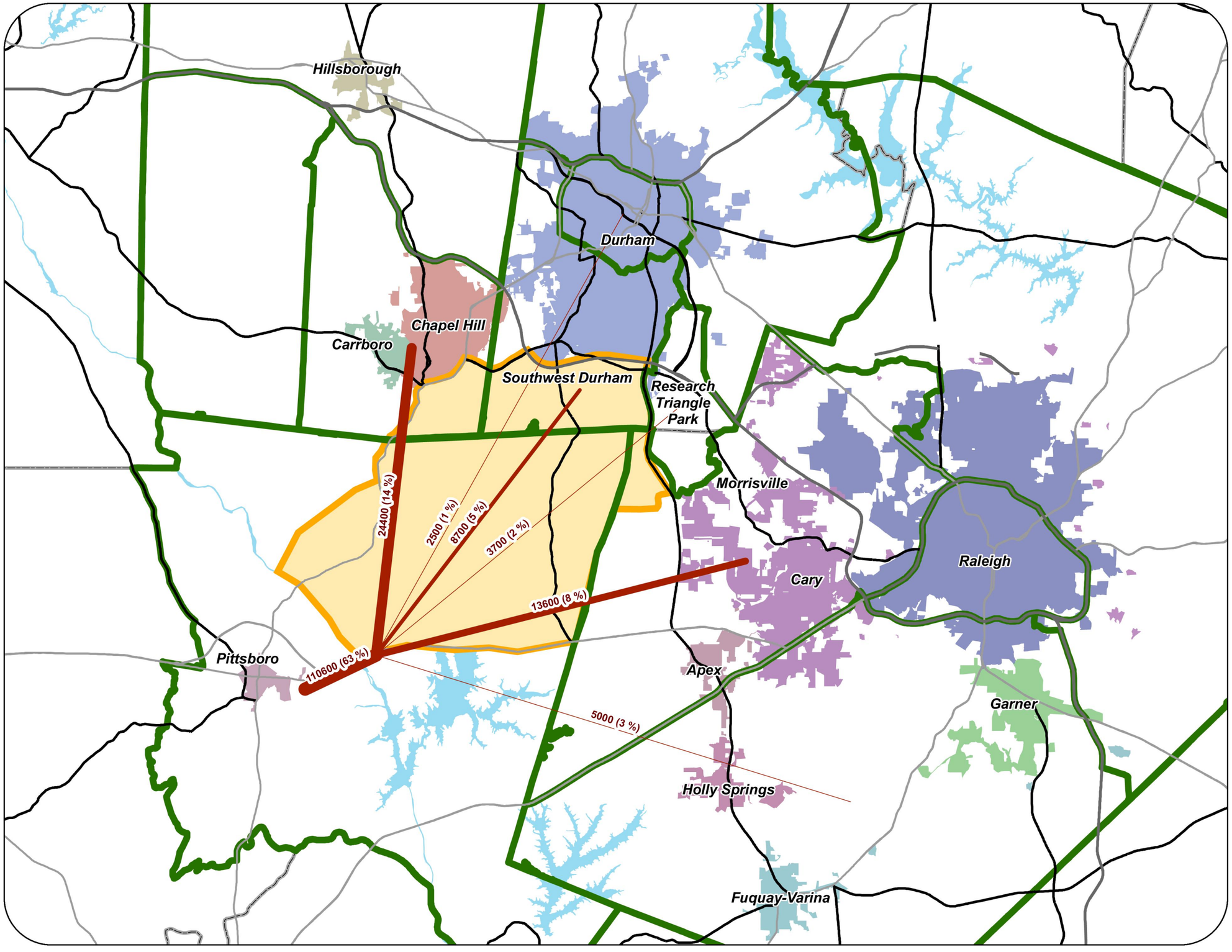
These district flows were added to the Triangle Regional Model to create a graphic showing “travel desire lines”. These desire lines show the district flows in a graphical manner. These graphical district flows can be seen in **Figure 18**.

Farrington Road Corridor Study

Figure 18

District Flows into Chatham County

Triangle Regional Model Origin-Destination Data



District Flows
Total Trips (and % of Trips)
- 2500 - 5000
- 5000 - 10000
- 10000 - 20000
- 20000 - 30000
- > 30000
- TRM Super-Districts
- Interstates
- US Highways
- State Highways
- Counties
- Study Area
- Lakes

November 25, 2008

N W E S

0 1 2 4 6 8 Miles

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The Built Environment

To demonstrate and understand growth in the Farrington Road corridor, it is necessary to examine the existing land use profile, development patterns, and the effects of these trends on the transportation system. A CommunityViz model that contains land use data (by parcel and TAZ) was developed. This land use model provides existing conditions and the existing land use profile along with future conditions in both a "business as usual" and "compact development" scenario. Each of these scenarios impacts the transportation system in a different way.

Land Use Profile

The Farrington Road Corridor study area is largely rural and undeveloped and includes a significant portion of environmentally sensitive lands. Over 41% of the land in the study area is classified as permanent conservation. These lands are predominantly comprised of Jordan Lake and its tributaries and game lands owned by the US Army Corps of Engineers but also include preserves and natural areas.

Slightly less than 40% of land in the study area is classified as residential. The majority of residential land is developed at extremely low densities. Roughly a fifth of residential land is classified as rural residential, with an additional 13.56% classified as low density residential. These lands are predominantly located adjacent to Jordan Lake. Less than 2% of land in the study area is comprised of medium or high density residential land uses.

Less than 2% of land in the study area is classified as commercial, industrial, or institutional. The majority of these areas are found in the extreme northern and southern portions of the study area, along Interstate 40 and Highway 64.

Lastly, slightly less than 9% of land in the study area is classified as vacant/unprotected. This category includes all undeveloped lands that are not classified as permanent conservation, farmland, or parks and recreation. These lands are usually adjacent to residential developments and in areas west of Jordan Lake.

Table 8 summarizes the existing land use profile for the study area and **Figure 19** shows Existing Land Use by parcel.

existing conditions

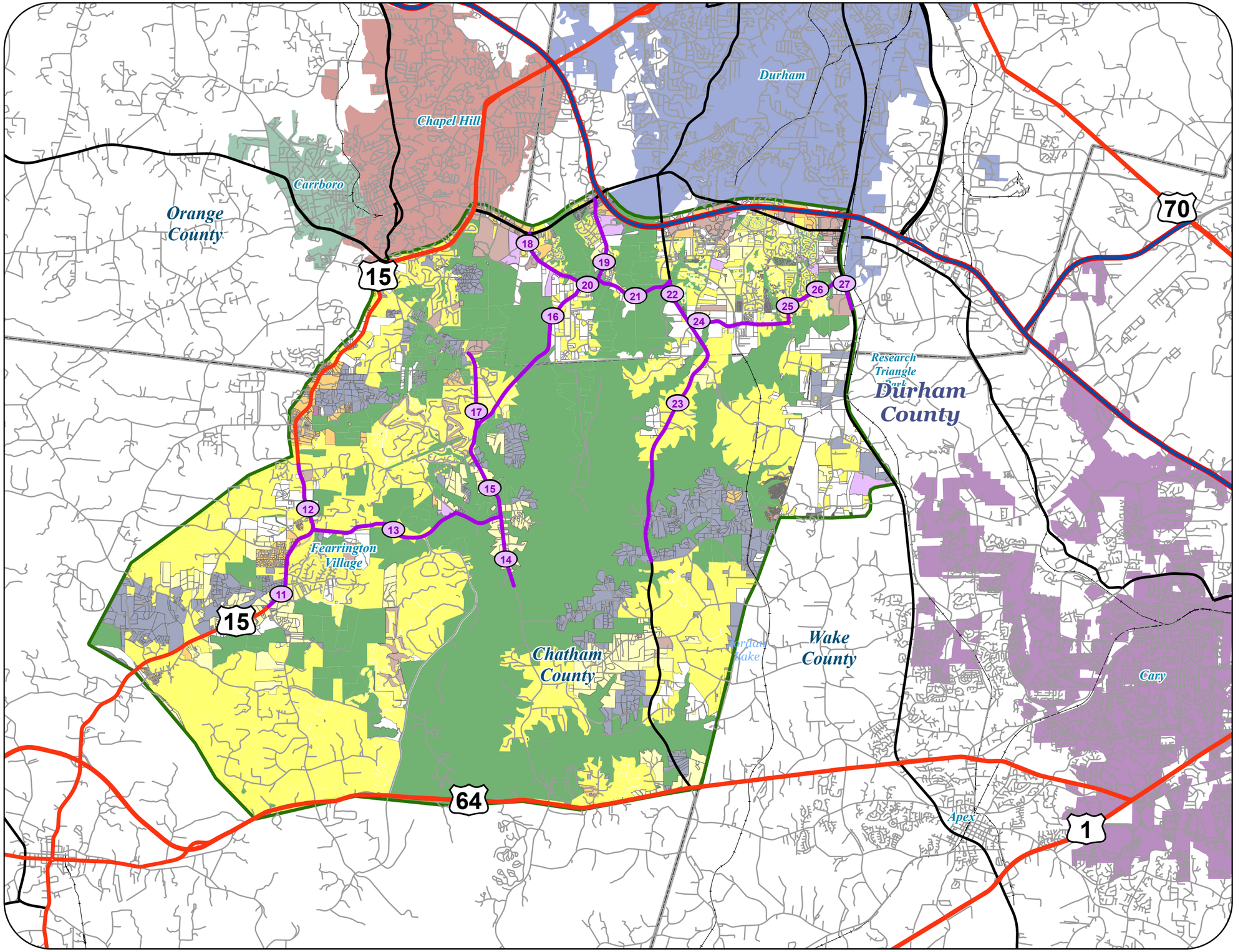
Table 8. Existing Land Use

Land Use	Acres	Percentage
Agriculture	4101.12	5.07%
Civic/Institutional	486.13	0.60%
Commercial/Retail	1735.3	2.14%
General Office	31.06	0.04%
High Density Residential	1.17	0.00%
Low Density Residential	26756.11	33.05%
Light Industrial	20.28	0.03%
Medium Density Residential	1433.98	1.77%
Conservation	33471.3	41.35%
Rural Residential	6123.41	7.56%
Vacant/Unprotected	6785.36	8.38%
Total	80945.22	100.00%

Farrington Road Corridor Study

Figure 19

Existing Land Use



Legend

elum study area

- Agriculture
- Civic/Institutional
- Commercial Retail
- Conservation
- General Office
- High Density Residential
- Low Density Residential
- Light Industrial
- Medium Density Residential
- Rural/Residential
- Vacant Unprotected
- Study Area
- Counties

Surrounding Communities

- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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The travel distance between origin and destination is one primary factor (along with travel mode choice) for influencing travel behavior. The physical distance between complimentary land uses in more rural or suburban settings tends to promote automobile travel, particularly since safe, convenient facilities are not usually available for pedestrians and bicyclists. Mixed-use, dense community development centers decrease the travel distance between complimentary land uses, and support transit, bicycle, and walking as viable alternatives to the automobile for meeting daily travel needs.

Existing Development Patterns

As indicated by the Land Use profile, the majority of the study area is characterized by very low density development. Residential development of this nature is comprised of large lot residential subdivisions designed with limited access points and cul-de-sacs. Large tracts of rural and farmland areas are interspersed throughout the study area, which have little transportation infrastructure other than two-lane farm-to-market roads which are ill-equipped to accommodate encroaching urbanization.

The examination of existing transportation infrastructure revealed that Jordan Lake significantly influences regional transportation and development patterns. Because east-west corridors that cross the lake are limited to Interstate 40 and NC 54 to the north and US 64 to the south, traffic is forced onto these existing routes or other existing smaller routes that travel around the lake entirely.

Proximity to the lake and location within its watershed can make infrastructure investment and development in those areas undesirable. Not all sites within the study area are unacceptable, but the transportation system must be low impact, especially in the interior core of the study area. Avoidance of environmental constraints creates additional gaps in the roadway network.

Natural Environment

As part of the corridor and land use evaluation, this section identifies and summarizes features of the natural environment that affect development patterns and build-out in the study area. The mapping in this section should be used for planning purposes only. Detailed assessments and

formal delineations of natural features should be conducted for any projects within the study area, prior to design and development.

Wetlands

Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands provide a variety of environmental benefits, including erosion and flood control, ground water recharge and discharge, and wildlife habitat.

Wetlands and streams are under the jurisdiction of the U.S. Army Corps of Engineers (USACE) as defined in Section 404 of the Clean Water Act. The Division of Water Quality (DWQ) also regulates streams and wetlands under Section 401 of the Clean Water Act. Additionally, the state regulates isolated wetlands under a separate state law. The USACE must approve any jurisdictional determinations as part of the permitting process. It is required that wetland and stream delineations be obtained prior to design. Permits (404/401) are required prior to impacting streams and wetlands within the study area.

Wetlands are prevalent in the study area throughout Jordan Lake and its tributaries. Several roads in the study area have wetlands on both sides of the right-of-way. Widenings or relocations of the road in these areas to smooth or straighten curves would require considerable study for and scrutiny by DWQ and USACE.

Federally Threatened and Endangered Species

According to information provided by the U.S. Fish and Wildlife Service and National Heritage Program, threatened and endangered species and their habitats are present in the study area. These species are found in Chatham, Orange, and Durham Counties and include the following:

- bald eagle (*Haliaetus leucocephalus*)
- Cape Fear Shiner (*Notropis mekistocholas*)
- red-cockaded woodpecker (*Picoides borealis*)
- harperella (*Ptilimnium nodosum*)
- Michaux's sumac *(Rhus michauxii*)
- smooth coneflower (*Echinacea laevigata*).

Any projects conducted in the study area should avoid impacting federally threatened and endangered species and their habitats.

Nutrient Sensitive Waters

Jordan Reservoir was constructed as a flood control project, and also functions as a water supply reservoir for surrounding communities. All waters in the Haw River watershed including Jordan Reservoir were classified as nutrient sensitive waters (NSW) due to the high nitrogen levels found in the lake in 1983.

This classification remains in place today, and according to DWQ, the Jordan Reservoir (and its tributaries) is one of the most eutrophic reservoirs in the state.

As a result, a NSW strategy was created and implemented to protect the reservoir from water quality problems associated with nutrient enrichment. As part of the management strategy, the entire Jordan watershed was designated a critical water supply watershed and given additional, more stringent requirements than the state minimum water supply watershed management requirements. These additional requirements include rules for protection and maintenance of riparian areas, urban storm water management, and discharge.

Water Supply Watersheds

All water supply watersheds in the study area are classified as WS-IV NSW. Class WS-IV watersheds have the following maximum allowable development requirements:

- Low density development at 2 dwelling units an acre or 24% built-upon area, and
- High density development at 24-50% built-upon area.

In addition, Class WS-IV watersheds do not allow the 10/70 provision. Typically this provision allows local governments to use 10% of the non-critical area of the watershed for development up to, but not exceeding, a total of 70% built upon area. In the study area, this provision is not allowed.

Agriculture, forest, and transportation best management practices (BMPs) are also required. Specifically the transportation BMP's are those described in DOT's document "Best Management Practices for Protection of Surface Waters."

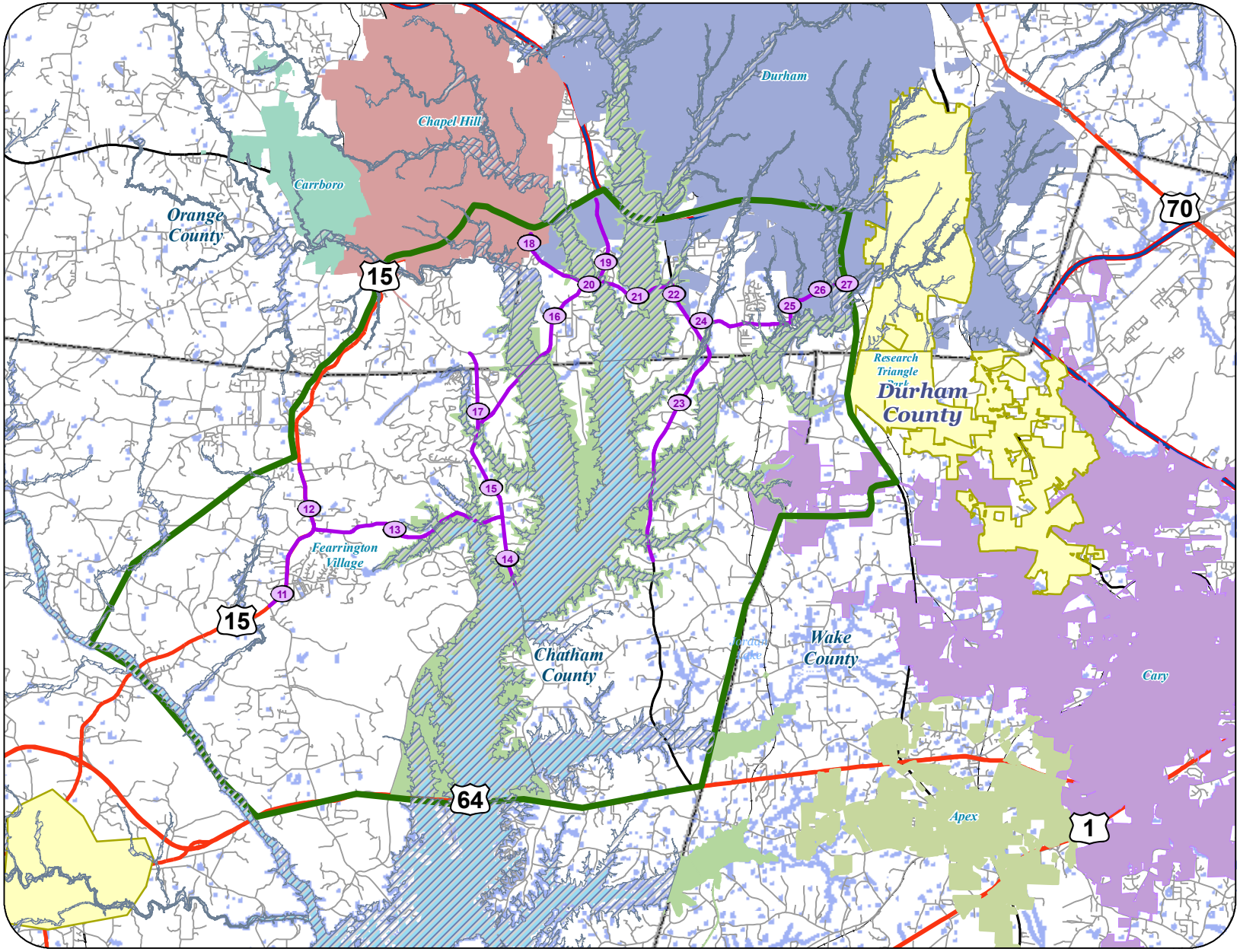
Required stream buffers in WS-IV watersheds are 30 ft for low density development and 100 feet for high density development. However, because the Neuse River Basin Riparian Buffer Protection Rules are applicable to the study area, 50 foot buffers are required, and these buffers are measured differently than buffers required by other classifications.

Floodplain/Floodway Zones

Many areas within the project corridor contain regulated floodplains or floodways. Jordan Reservoir and adjacent areas are within the 100-year flood zone. These areas are designated as Special Flood Hazard Areas and AE zones. Special Flood Hazard areas are defined as areas subject to inundation by the 1% chance annual flood. Zones designated as AE are also present within the Special Flood Hazard Areas. Zone AE is defined as the channel of a stream and the adjacent floodway that must be kept free of encroachment.

Development in these areas will require coordination with the county's floodplain administrator. Any proposed fill in the floodplain will need to be evaluated to show a "no rise" in flood elevation. If this is not possible, detailed hydrologic analysis will be required and a map revision will need to be approved by the administrator and the Federal Emergency Management Agency (FEMA). Floodplain fill permits may be required by county regulators prior to construction. Counties may have delegated programs for disturbance activities within these areas. It is recommended that the floodplain administrators be contacted for specific information regarding floodway regulations within each of the counties.

Figure 20 shows the natural features present in the study area**.**



Farrington Road Corridor Study

Figure 20

Natural Features Map

Legend

- Study Area
- Counties
- Corridor Roads
- 100-Year Floodplain
- UFWS National Wetland Inventory
- Corps of Engineers Land
- Lakes
- RESEARCH TRIANGLE PARK
- APEX NC
- CARRBORO NC
- CARY NC
- CHAPEL HILL NC
- DURHAM NC

November 25, 2008

0 0.5 1 2 3 Miles

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Existing Plans, Policies, & Regulatory Tools

The Corridor Study was coordinated closely with other state, regional, county, and local plans and/or policies that guide planning efforts in the area. All plans and policies in jurisdictions pertinent to the study area were reviewed. These jurisdictions include Orange County, Durham County, Chatham County, Wake County, the City of Durham, the Town of Chapel Hill, and the Town of Cary. Plans and policies were divided into three main categories: visioning documents, land development controls, and environmental rules and regulations. This section summarizes the consultant's review of the materials and highlights, issues, policies, or directives that may influence reasonable implementation of the Farrington Road Corridor Study.

Visioning Documents

Visioning documents create a framework for decision-making in communities. They serve to guide growth and development and can address a multitude of issues from housing to transportation to economic development. Visioning documents set goals and objectives for the community and should be referenced by officials when making policy decisions to ensure a coordinated approach for future growth. With a clear vision for the future and an established course of action to get there, a community is much more likely to realize desired outcomes. The following visioning documents are believed to have an impact on the Farrington Road Corridor Study:

Joint Land Use Plan-Chatham County and Town of Cary

A resolution to draft a joint land use plan between Jordan Lake and the Chatham/Wake County line was adopted by Chatham County and the Town of Cary in December 2005. Two community meetings were held in 2006 and two joint meetings and a public hearing were held in 2007. Development of the plan is currently underway, with a draft land use map available online for public comment.

The draft plan emphasizes very low density development (1 du/10 acres) within a ½ mile of the lake because of sensitive environmental resources including natural heritage sites and game lands. A resource conservation overlay, a 150 yard hunting buffer, and ½ mile buffers

around burn-blocks are also recommended to protect natural resources. The plan is recommending placement of no major roads through designated environmentally-sensitive areas. Residential development should occur in "zoning extremes," where some areas allow very high density development and some allow very low density development to prevent fragmentation of the landscape. Conservation subdivision design should be used whenever possible within the study area.

Chatham County Land Conservation and Development Plan

Chatham County's vision developed for this plan is as follows: "Chatham County will be a place that cooperatively controls its own destiny to assure the state of well-being desired by all of our people, while proudly preserving diverse cultural heritages and the County's rural character." Two fundamental policies identified throughout the plan are achieving "balanced growth" and engaging in "an open, pro-active and cooperative approach to land development and conservation." The plan emphasizes preservation of form and function of rural character, development of compact communities with a mix of activities including economic development centers in order to promote a diversified, sustainable business community, and development of an integrated approach to protecting and promoting high-quality open space, recreation, historic and tourism locations. However, the "community plan map" was never adopted.

Chatham County Land Use Strategic Plan

The Land Use Strategic Plan complements the Land Conservation and Development Plan described above. Achieving "balanced growth" and conserving and protecting natural resources are of particular relevance to this Plan. In support of these policies, goals were established. These goals include: implementation of community-supported growth management strategies, conservation of prime farmland, concentration of high intensity uses, increased proportion of land preserved as open space in areas under development, and provision of a transportation system that effectively and efficiently fulfills the needs of all county interests.

Draft Orange County Comprehensive Plan

The Orange County Comprehensive Plan serves as a guide to the county's growth and development through 2030. On May 19, 2008 a draft of the Comprehensive Plan was made available for public review. Adoption of the comprehensive plan document is pending.

Becoming a sustainable community is the underpinning of the plan. Key objectives to achieve sustainability initiatives in the county include environmental conservation, energy efficiency, affordable housing, social equity, a thriving economy, regional agricultural production, and the availability of transit-oriented, walkable, mixed-use communities. Key implementation strategies include:

- Establish Economic Development Districts to stimulate and accommodate development in strategic locations that can be served by transportation systems and public infrastructure, and be convenient to housing opportunities.
- Identify and encourage mixed-use districts that provide live-work-shop opportunities and minimize travel needs.
- Explore a Strategic Growth and Resource Conservation program that will help focus new development in areas that can best accommodate it. Simultaneously, this program should preserve / conserve rural and agricultural land with compensation mechanisms for rural property owners.
- Develop an interconnected system of pedestrian and bicycle trails to provide both recreation opportunities and increased mobility choices to residents.
- Identify growth opportunity areas near transit corridors and along major thoroughfares to encourage more public transportation use by County residents.
- Encourage residents to use alternative modes of transportation and ride-sharing including interconnected pedestrian and bicycle trails, transit lanes along major

thoroughfares; and development of park-and-ride lots that would encourage use of public transportation to travel to and from work.

Durham City/County Comprehensive Plan

The Durham City/County Comprehensive Plan serves as a guide for future growth and development through 2020. The document was adopted in February 2005 and amended in August 2007.

The transportation element of the Comprehensive Plan emphasizes public transit and pedestrian and bicycle movement, as well as automobile travel. It stresses regional solutions and the importance of integration between land use and transportation planning processes. The land use element concentrates on balancing predicted demand with the need to protect natural resources and to move towards a more efficient development pattern.

Wake County Land Use Plan

The Wake County Land Use Plan was adopted in 1996 and updated in 2003. Goals and strategies of particular significance to this plan include seeking regional solutions to transportation issues, ensuring that the land use plan and transportation plan mutually support each other, identifying and preserving areas that make a significant contribution to environmental quality, and planning transportation facilities in relation to planned growth.

Wake County Transportation Plan

The Wake County Transportation Plan was adopted by the County in April 2003. The goal of the plan is to identify a diversified multimodal transportation investment program to provide safe, efficient, and effective mobility for all citizens and visitors. The plan encompasses collector streets, thoroughfares, public transit, bicycle and pedestrian needs of the County through 2025.

Chapel Hill Southern Area Small Area Plan

The Chapel Hill Southern Area Small Area Plan was adopted June 23, 1992. The area of town, although undeveloped, was designated to

develop at urban densities and the plan was created to determine how best to develop the land. The primary objective of the plan was preservation, with a focus on preserving the natural beauty and character of the area, protecting environmentally sensitive areas and water quality, and enhancing existing neighborhoods. The Plan proposes low density residential development for most of the land, with higher density residential development concentrated in a walkable village setting.

Land Development Controls

Land Development Controls, including zoning ordinances, subdivision ordinances, and unified development ordinances establish regulations, procedures, and standards local governments can enforce or implement to ensure land is developed in a manner that is consistent with the goals, policies, and strategies set forth in the various visioning documents described above.

The land development controls of particular influence to this corridor study include the Chatham County zoning ordinance and the Durham City/County Unified Development Ordinance (UDO).

Chatham County amended their zoning ordinance to include a Compact Community District in April 2004. This district allowed for compact residential development with a mixed-use commercial village center with a conditional use permit. It was created to help implement the Chatham County Land Conservation and Development Plan described above. The desirable location for these villages is in northeastern Chatham County, within the study area. The purpose of this district is to promote new communities that support mixed-use development, allow for compact village-style development surrounded by protected green space, and promote connectivity and walkability. This type of development was considered when reviewing future year development scenarios (see Scenario Planning section).

The Durham City/County UDO establishes development tiers to ensure that development reflects the character of the area within which it occurs. The southern portions of Durham City and County are in the study area. These areas are predominately located in rural and suburban tiers. The majority of Rural tiers are located within watershed critical areas Development in this tier should focus on protecting water

resources and is characterized by large lots and limited commercial areas. Suburban tiers are where the majority of population growth in Durham is expected and are characterized by traditional suburban densities and patterns.

Environmental Rules and Regulations

Federal, state, and local governments have established environmental regulations to protect water quality of streams and surface waters and other environmentally sensitive areas, to minimize losses due to flooding, and to encourage the wise and productive use of natural resources.

The following environmental rules and regulations were considered in the development of recommendations for the study area:

Neuse River Nutrient Sensitive Waters (NSW) Management Strategy

The study area is subject to the Neuse River Nutrient Sensitive Waters (NSW) Management Strategy. This strategy is state mandated by the North Carolina Division of Water Quality (DWQ) and uses nutrient removal as the water quality criteria. The strategy resulted in the development of Neuse Rules, or permanent rules designed to support implementation of the strategy. These rules established a nutrient reduction goal and included rules for wastewater discharges, urban storm water management, agricultural nitrogen reduction, and nutrient management.

Another set of rules of particular interest to this study, also established under the NSW management strategy, is the Neuse Riparian Buffer Protection Rules. Neuse River buffer rules apply to vegetated areas within 50 feet of the top of the bank along surface water features, including streams, rivers, lakes, ponds, etc. These rules apply where features are shown on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS). In addition to the 50-foot buffer requirements, storm water that runs into the buffer must be continually diffused. New buffer rules were implemented for the study area as part of the newly adopted Jordan Lake Rules in 2007.

Jordan Lake Rules

The Division of Water Quality (DWQ) published a proposed set of rules for Jordan Lake in June 2007 that affects all jurisdictions in the study area. These rules are the strictest implemented watershed rules to date in North Carolina and include measures that will require retrofitting of existing development. These rules were revised in 2008, and a new set of rules is still under review. Like the Neuse Rules, the Jordan Lake Rules establish nutrient reduction goals and require nutrient management, agriculture, storm water management (both for new and existing development), and protection of riparian buffers.

These buffer rules apply to all streams and areas along the edge of Jordan Lake. In addition, these rules govern activities that impact any areas within 50 feet of surface waters in the Jordan watershed, including intermittent streams, perennial streams, lakes, reservoirs, and ponds.

In addition, the N.C. Division of Water Quality (DWQ) requires that a Hazardous Spill Catch Basin be constructed at stream crossings that are within the Lake Jordan watershed, excluding roadway projects.

Local Buffer Regulations

The following county-wide buffer regulations were considered in the development of the corridor study:

Chatham County has 100-foot buffer requirements on most streams, rivers, and lakes within the Jordan Lake watershed. In some instances the buffer requirements are lessened to 50 feet. The county is also considering institution of additional restrictions, such as limiting development on steep slopes and along stream buffers.

The buffer regulations in Orange County vary from approximately 65-80 feet dependent upon the degree of slope within the area. If the feature occurs within a floodplain, a licensed engineer or surveyor must calculate the extent of the floodplain and slopes. There are general 50-foot buffers for those areas not within a protected watershed. The protected and unprotected watersheds

are designated by the County, and protected areas are defined by the county as those features that feed into a water supply watershed.

Durham County buffer regulations include 50-foot buffers on all perennial or intermittent streams. Streams occurring within water supply watersheds can have increased buffer requirements of 50-100 feet for intermittent streams and 100-150 feet for perennial streams.

Watershed Regulations/Ordinances

A watershed ordinance protects the water quality of the streams and surface water in the water supply watersheds. Watershed regulations/ordinances in this study area comply with the management strategies and rules described above.

Flood Damage Prevention Ordinance

A flood damage prevention ordinance promotes the health, safety, morals, and general welfare of a community by minimizing public and private losses due to flood conditions within flood prone areas. These ordinances restrict or prohibit certain uses which are dangerous to health, safety, and property due to water or erosion hazards, or those uses which result in damaging increases in erosion, flood heights, or velocities.

Environmental Impact Ordinance

Orange County has an environmental impact ordinance that encourages the wise and productive use of natural resources, promotes public and governmental awareness of the environment, educates the public on the environmental consequences of development, requires full disclosure of the anticipated effects of proposed development on the resources of the county, and permits and facilitates full enforcement of all ordinances and regulations concerning the environment in an efficient, coordinated and comprehensive manner.

Specifically, the ordinance requires the preparation and evaluation of environmental impact documents for projects that either require certain state permits or require a local land use permit for development within environmentally sensitive areas.

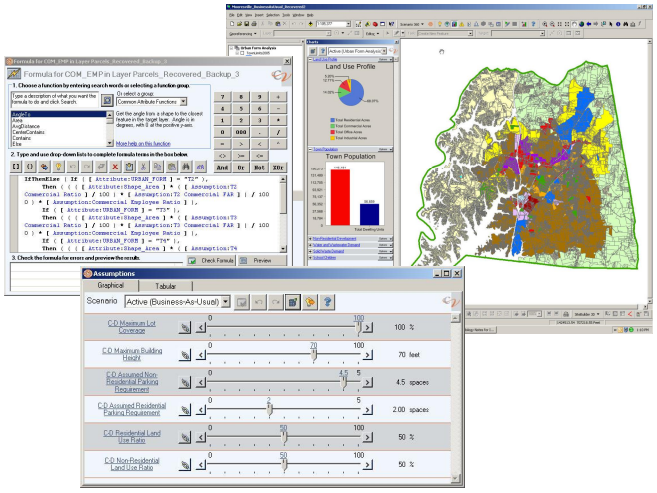
Section 404 Wetland Regulations

Communities within the study area recognize the importance of protecting environmentally sensitive areas, which include those lands designated as wetlands by the US Army Corps of Engineers. It is generally the policy of the local governments that all development within these areas conforms to federal, state, and local regulations and relevant development ordinances.

4 scenario planning

Scenario planning represents the next generation of analytical processes created to evaluate the influence of physical characteristics, environmental features, land use patterns, development intensities, and urban design on the efficiency of the surrounding transportation system. Visualization of the interaction between land use and transportation decisions, as well as causational factors that explain the push-pull relationship between them, provides community leaders with information they need to evaluate the consequences of potential actions. Building on this momentum, the Federal Highway Administration, Environmental Protection Agency, and other federal agencies are actively promoting the use of scenario planning models by state agencies, metropolitan planning organizations, and local governments to better integrate land use, urban design, and transportation decision-making processes.

CommunityViz Software



The two-dimensional map and data analysis component of CommunityViz® software, Scenario 360®, was used to evaluate impacts on the transportation system generated by competing future year development scenarios considered for the study area. It adds the functionality of a spatial spreadsheet to ArcGIS Map®, similar to how a spreadsheet program like Microsoft Excel® handles numerical data. Dynamic calculations embedded in the spatial spreadsheet were controlled by user-written formulas that change value as referenced inputs change. Formulas were written to supply the result of mathematical relationships with other spatial data included in the analysis, and with assumptions programmed in the planning model that reflect certain public policies, development controls, or market conditions unique to the study area.

4 scenario planning

Study Area

The study area for the scenario planning analysis is slightly smaller than the study area described in Chapter 1. Specifically, it omits parcels in the Town of Cary and Wake County to better match the traffic analysis zone boundaries used in the Triangle Regional Model (TRM).

Growth Projections (2035)

The MPO planning process for developing growth projections in the region (commonly referred to as socioeconomic data) relies on static data sets generated from independent studies commissioned during major updates to the Triangle Area Regional Travel Demand Model. Collectively, this information represents the assumed development potential for eight counties (some full and some in part) and multiple cities (major cities include Raleigh, Durham, Chapel-Hill, Apex, Cary, and Wake Forest) included in the Triangle Region. Demand on the transportation system (i.e., trip generation) is calculated directly from the TRM socioeconomic data.

The last major update to regional control totals for socioeconomic data used in the Triangle Regional Travel Demand Model was completed in 2008. Population, housing, and employment estimates included in the socioeconomic dataset available for the study area were used as direct inputs to the CommunityViz® growth allocation model. The planning horizon for the land use allocation model is 2035.

Growth Allocation Model: Three Step Process

There are three main steps in the CommunityViz® growth allocation model: supply, desirability, and demand. Each of these is briefly described below:

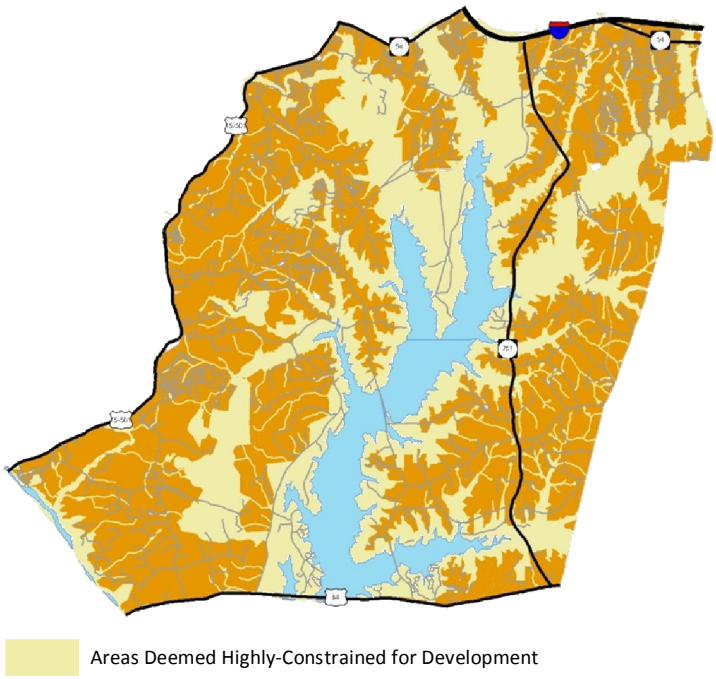
Supply

The "supply" of development potential remaining in the study area was estimated using two general factors: land availability and local land development controls. Land availability was determined based

on the presence of physical, political, or policy conditions that would prohibit or limit future growth (i.e., areas highly-constrained for development). Data used to identify highly-constrained areas for development in the study area include major water bodies, 100-year floodplain, 50-foot riparian buffers from perennial streams, dedicated and registered conservation easements, NWI wetlands, formalized agriculture districts, and significant natural heritage areas.

A site efficiency factor (10%-30%) for each generalized land use category was also applied to the parcels greater than twenty acres in size to account for land typically dedicated to certain on-site improvements (e.g., internal streets, storm water management, open space, etc.) necessitated by new development. The remaining portion(s) of a parcel after removal of highly-constrained areas for development and application of the site efficiency factor was used to estimate build-out potential in the model.

Highly-Constrained Areas Map



Areas Deemed Highly-Constrained for Development

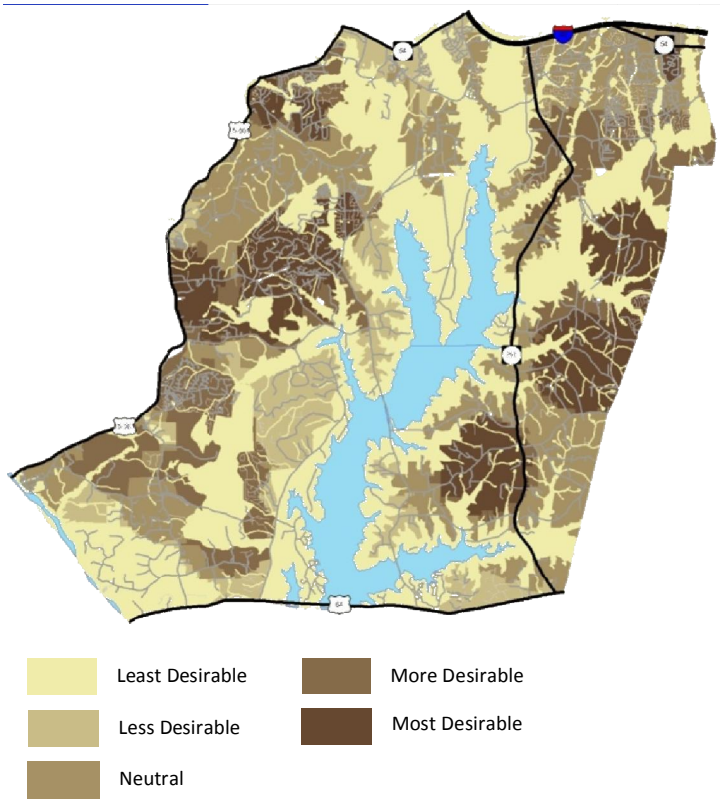
Build-out potential for residential and non-residential uses was estimated using land development controls set forth in adopted plans and ordinances administered by cities and counties in the study area. Height, bulk, and density controls observed for the study area were inventoried and applied to general land use categories assigned in the model (See appendix for development controls by generalized land use). Build-out potential for each parcel in the model was reported by number of dwelling units, commercial square footage, commercial employees, general office square footage, general office employees, institutional square footage, institutional employees, industrial square footage, and industrial employees.

Desirability

The "desirability" of one parcel to develop relative to another was based on its spatial relationship to factors deemed either positive or negative for attracting growth. Factors represented in the study area included proximity to existing urban areas, proximity to permanent conservation areas, access to water and sewer service, proximity to major intersections, proximity to the regional activity center in the study area (i.e., Streets at South Point Mall), and proximity to compact development nodes identified for Chatham County.

The physical presence of factors prevalent in the study area, as well as those that extend across the region, were layered on a parcel map, and calculations were performed to determine either percent overlap or physical proximity (as appropriate) for each of the physical features in relation to individual parcels. CommunityViz® software calculated a numeric score for desirability based on the presence of each individual feature relevant to individual parcels. A normalized score (between 0 and 100) was used to rank the parcels from least to most desirable for development.

Development Desirability Map



Raw scores reported for individual features were weighted to prioritize the desirability factors for attracting new development (See appendix for weighting values). For example, access to water and sewer service areas was assigned a higher importance in determining desirability for development than proximity to the regional activity center in the study area. After each of the individual features was weighted, the scores were combined into one final desirability score representing the overall desirability of that parcel for attracting new

development. These scores were normalized to ensure that the lowest score was rescaled to 0, the highest score rescaled to 100, and the scores in between rescaled to fall within the new spectrum. Normalizing the scores is a critical process for ensuring that parcels are ranked relative to each other, that suitability maps are easily presentable to viewers, and that allocation of new growth occurs according to relative desirability.

Demand

The amount of growth anticipated in 2035 (i.e., "demand") was forecasted to the parcel level for the study area. The "allocation tool wizard" in CommunityViz® used supply, desirability, and demand statistics calculated in the model to allocate projected new dwelling units and employees by type amongst the parcels. For this process, the allocation wizard uses build-out potential as the "supply", population and employment forecasts as the "demand", and the results of the land suitability analysis as the "desirability score." (Note: Parcels noted with existing development were removed from the list of eligible parcels for new development in the "supply" step of the process). Results generated at the parcel level were aggregated to the traffic analysis zone level for use in the regional travel demand model.

Future Year Development Scenarios

Three extreme future year development scenarios (i.e., business-as-usual, compact development centers, and constrained growth projections) were created for the study area to measure the impact that competing development alternatives may have on demand factors (i.e., trip generation, trip length, and travel mode choice) commonly thought to influence the efficiency of the transportation system. All three development scenarios represent the same study area and long-term planning horizon (2035). A brief summary of each development scenario follows.

Business-as-Usual

The business-as-usual scenario represents continuation of an emerging suburban development pattern prevalent in the study area

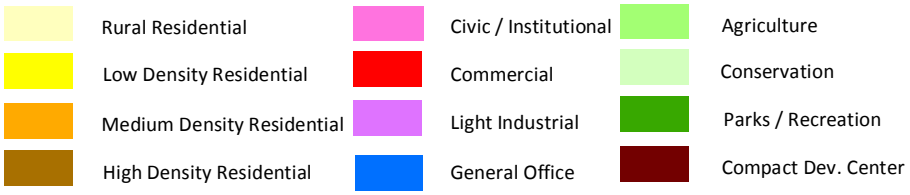
(see image on following page). New construction is characterized by isolated, single-use developments surrounded by low-density rural residential home sites. The regional activity center surrounding the Streets at South Point Mall continues to be the social and economic center of the study area. Low-density development patterns and the physical distance between complementary land uses tends to promote automobile travel, particularly since safe, convenient facilities are not easily available for pedestrians, bicyclists, and transit riders. Increased traffic congestion on the rural road network means less mobility for residents and visitors to the study area as well as others traveling through the community.

Compact Development Centers

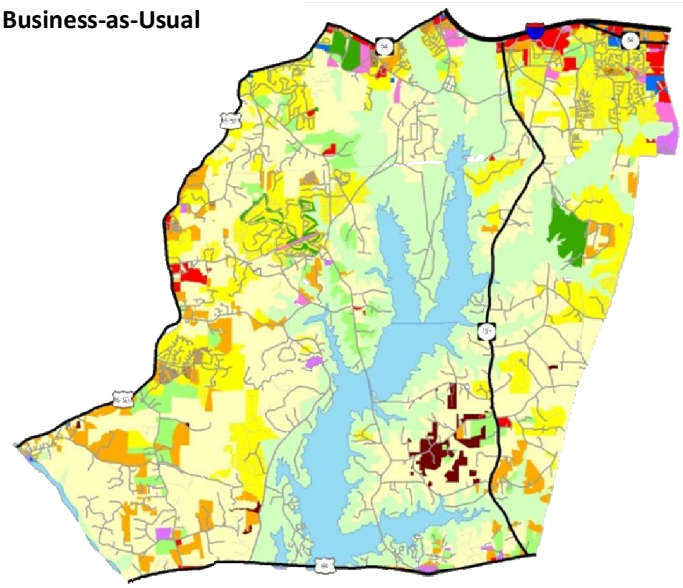
The compact development scenario represents fulfillment of the vision for many communities in the study area to promote a more sustainable development pattern – measured by environmental stewardship and equitable distribution of community resources – that also reflects the community's unique character and local values. In this planning scenario, future year growth is largely directed to one of six compact development centers identified for the study area. Each compact development center would be designed following the principles of new urbanism (i.e., containing town center, walkable streets, higher densities, etc.) and may include multiple neighborhoods within it.

The diversity of close-by, complementary land uses and local travel options within the designated compact development centers encourages better distribution of trips and shorter trip lengths, thereby reducing the number of vehicles traveling similar routes on a daily basis. This scenario also assumes provision of safe and convenient facilities for pedestrians, bicyclists, and transit riders traveling between complementary land uses. Permanent preservation of natural areas in between the designated centers respects the vulnerability of this environmentally-sensitive area while accommodating new growth.

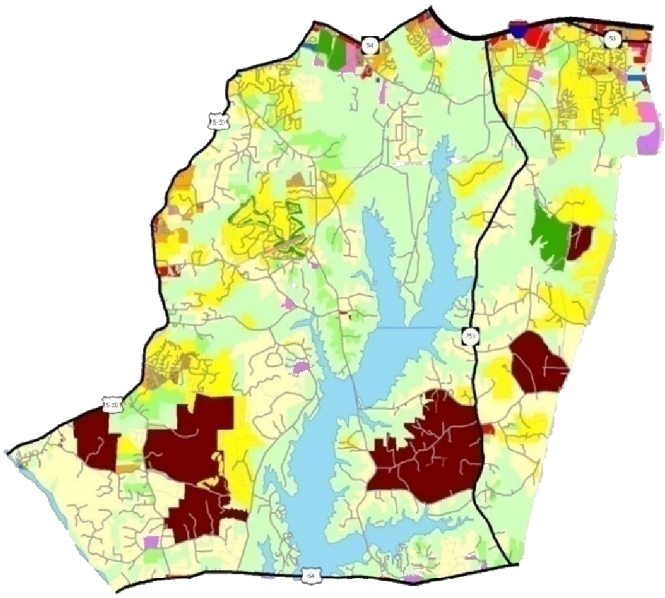
4 scenario planning



Business-as-Usual



Compact Development Centers



Development Scenario Maps

Constrained Growth Projection

The constrained growth projection scenario assumes the same land use patterns and development densities/intensities represented in the business-as-usual development scenario. However, this scenario assumes a 15% overall reduction in the number of new dwelling units and employees anticipated for the area. This phenomenon could occur for several reasons, including reduced market demand for development in the study area, adoption of an adequate public facilities ordinance for the study area, increased development impact fees, or some other policy-driven initiative by local governments in the study area to reduce overall growth.

Scenario Planning Results

Summary statistics for evaluating the impacts generated by the three development scenarios were reported using CommunityViz software®

and the 2035 TRM. Measures of Effectiveness (MOEs) generated by the two software programs articulate the significance of reorganizing land use patterns and development densities/intensities, or implementing policies and ordinances to manage the type and timing of development, to improve efficiency of the regional transportation system (i.e., business-as-usual scenario vs. compact development centers scenario or business-as-usual scenario vs. constrained growth projections scenario).

MOEs from the TRM indicated a 4.76% decrease in vehicle miles traveled per person (system-wide) for the compact development center scenario and 6.90% decrease in vehicle miles traveled per person for the constrained growth projection scenario compared to business-as-usual. **Table 9** summarizes all MOEs from the 2035 TRM for all three development scenarios.

Table 9. Measures of Effectiveness from the Triangle Research Model (TRM)

	Scenario			Percent Difference	
	Business-As-Usual (BAU)	Compact Development Centers (CDC)	Constrained Growth Projection (CGP)	BAU-CDC	BAU-CGP
Study Area Population	22,789.00	22,789.00	21,687.00	NA	NA
Vehicle Trips	95,116.00	76,330.00	71,895.00	-19.75%	-24.41%
Vehicle Trips/Person	4.17	3.35	3.32	-19.75%	-20.57%
VMT	526,106.00	501,041.00	466,130.00	-4.76%	-11.40%
VMT/Person	23.09	21.99	21.49	-4.76%	-6.90%
VHT	795,316.00	752,541.00	694,950.00	-5.38%	-12.62%
VHT/Person (hours)	0.58	0.55	0.53	-5.38%	-8.18%
VHT/Person (minutes)	34.90	33.02	32.04	-5.38%	-8.18%
Average AM Speed	41.11	41.36	41.03	0.61%	-0.80%
Percent VMT over Capacity	5.32%	4.66%	4.41%	NA	NA

VMT= Vehicle miles traveled. VHT= Vehicle hours traveled.

Both the compact development centers scenario and constrained growth projection scenario reduce the spatial footprint of suburban development on the surrounding landscape. Compact, mixed-use centers identified in the hypothetical development scenario would limit sprawling, low-density development patterns and reduce accompanying public infrastructure costs. Output data from CommunityViz® indicates that up to 47.02% of the total land area included in the study area could be conserved compared to 34.63% in the business-as-usual scenario. Beyond environmental stewardship, the compact development scenario supports prudent fiscal responsibility for capital improvements planning and accommodates purposeful growth beyond the twenty year planning horizon.

Land consumption in the constrained growth projection development scenario would also limit the footprint of suburban-scale development through 2035. However, continued reliance on the same land use patterns and development densities/intensities represented in the business-as-usual development scenario only delays the effects of sprawl in the study area.

Table 10 summarizes the land use profile, by general land use category, for all three development scenarios.

Table 10. Land Use Profile by Scenario

General Land Use Category	Business As Usual		Compact Development Centers		Constrained Growth Projection	
	Acreage	Percent	Acreage	Percent	Acreage	Percent
Agriculture	2,989.95	4.20%	2,614.06	3.67%	2,989.95	4.20%
Civic / Institutional	519.48	0.73%	519.48	0.73%	519.48	0.73%
Commercial	1,046.66	1.47%	599.62	0.84%	1,046.66	1.47%
General Office	227.81	0.32%	123.87	0.17%	227.81	0.32%
High Density Residential	166.63	0.23%	166.63	0.23%	166.63	0.23%
Low Density Residential	10,656.32	14.96%	9,604.48	13.48%	10,656.32	14.96%
Light Industrial	335.03	0.47%	335.03	0.47%	335.03	0.47%
Medium Density Residential	3,846.39	5.40%	916.33	1.29%	3,846.39	5.40%
Permanent Conservation	24,669.52	34.63%	33,494.36	47.02%	24,669.52	34.63%
Parks & Recreation	923.14	1.30%	917.71	1.29%	923.14	1.30%
Rural Residential	25,209.14	35.39%	15,416.21	21.64%	25,209.14	35.39%
Compact Development Center	650.07	0.91%	6,532.37	9.17%	650.07	0.91%
Total	**71,240.15**	**100.00%**	**71,240.15**	**100.00%**	**71,240.15**	**100.00%**

5 future year transportation analysis

This chapter of the report summarizes a comprehensive assessment of traffic conditions anticipated for the study area in 2035. Future year conditions reported for corridors and key intersections were used to identify isolated deficiencies in the transportation network, as well as indications of larger, system-wide deficiencies expected from continued "business-as-usual" development patterns. Results from the analysis were compared to existing conditions (2005) using performance measures included in the Triangle Regional Model (TRM). Output from the analysis was used to justify short- and long-term improvements highlighted in Chapter 5 of this report.

Triangle Regional Model

The Triangle Regional Model (Air Quality Conformance Version) was developed in 2004 to serve as a planning tool for analyzing and forecasting traffic in the Triangle area. The model was developed using the TranPlan software package and follows a traditional four-step modeling process — trip generation, trip distribution, mode split, and traffic assignment. The base year for the approved travel demand model is 2005. Forecast years include 2015, 2025, and 2035. Future year traffic forecasts for this study (2035) were estimated from the fiscally-constrained existing + committed network assumed for the DCHC MPO Long Range Transportation Plan.

Growth Scenario

The future year transportation assessment assumed the business-as-usual development scenario described in Chapter 4 of this report.

Future Travel Pattern Analysis

Travel patterns in the study area were reviewed to identify prevalent traffic movements that will affect the roads in the study area in 2035. This analysis drew from the 2035 TRM to determine regional traffic patterns from western Chatham County and the Jordan Lake area to Research Triangle Park (RTP). Specific data included in the review are:

- TRM Future Year (2035) model traffic flows from Chatham County
- TRM Future Year (2035) model select link analysis

As in the 2005 base year, the presence and shape of Jordan Lake has an effect on local and regional travel patterns, limiting the number of east-west corridors that cross it. Interstate 40 and NC 54 are the predominant routes north of the watershed, while U.S. Highway 64 crosses Jordan Lake at the southern edge of the study area. In addition, future growth and changes in the larger transportation system (such as the addition of I-540 in Western Wake County) are likely to have significant effects on travel throughout the study area.

Select Link Analysis

DCHC MPO and Kimley-Horn prepared a number of Select Link Analysis model runs using the Triangle Research Model for roadway segments in the study area. Segments that corresponded to corridors in this study included:

- Farrington Road
- Farrington Mill Road
- US 15-501
- Jack Bennett Road
- Scott King Road
- NC 55.

Select link analysis is a means to demonstrate how traffic that crosses a particular section of roadway distribute (comes from and goes to) throughout the network. It does not present the total volume for model links, only those which pass through a particular section. This type of analysis is helpful when contemplating the likely impacts of proposed improvements.

Figures 21-24 on the following pages show the results of the select link analysis for each corridor. These figures show the location of each of the select link analysis locations, along with the distribution of trips (by percentage of total trips on the subject link). For example, in **Figure 21**, the select link analysis location is Farrington Road between Stagecoach Road and Barbee Chapel Road. By definition, 100% of the select link volume goes through this section. East of this link, 74% of this traffic is either coming from or going to Stagecoach Road. The other 26% is heading North on Farrington Road. Of the 74% using Stagecoach Road, 24% heads south on NC 55.

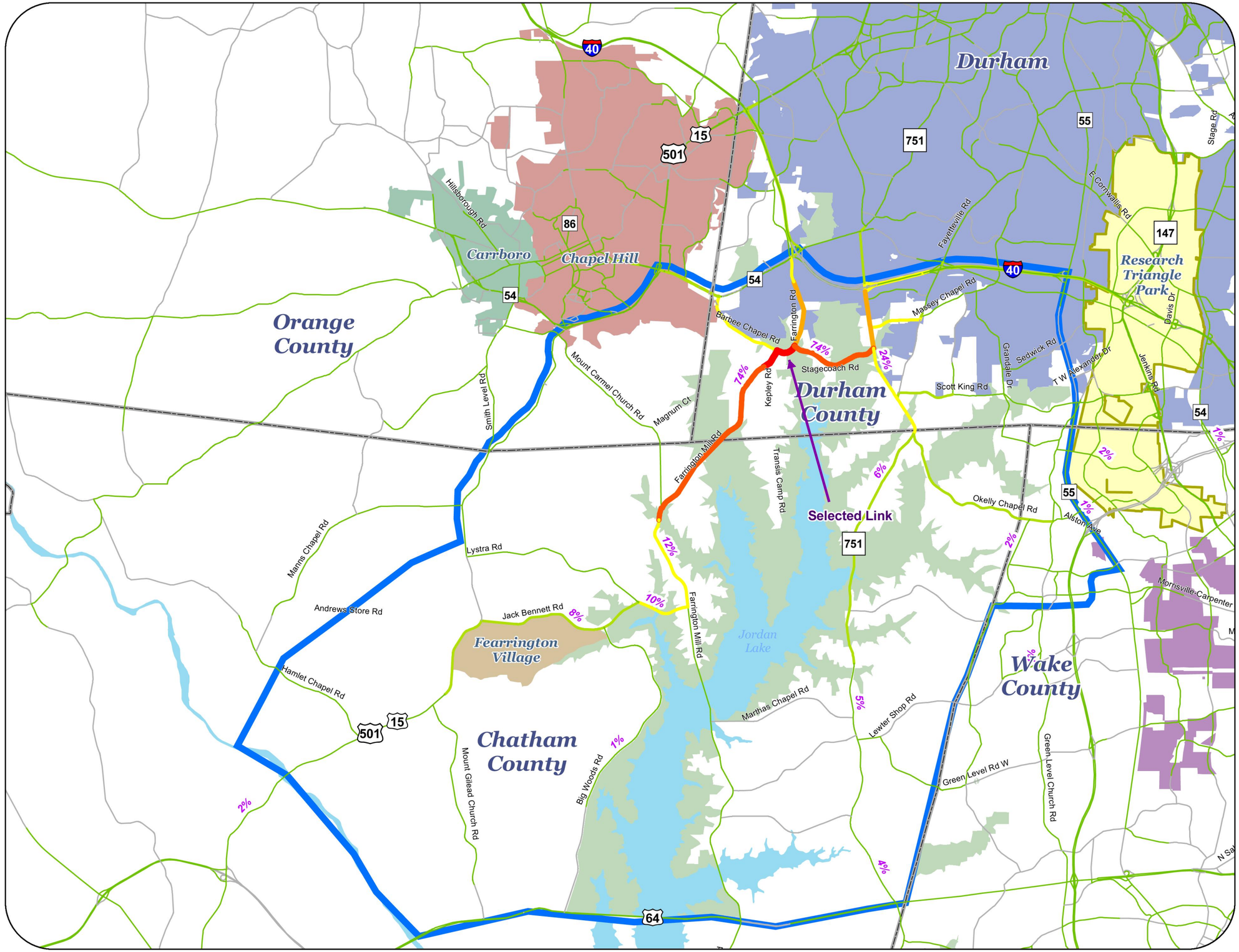
Figure 21 shows the select link analysis for Farrington Road between Stagecoach Road and Barbee Chapel Road. This select link reveals that the majority of traffic on this facility could be characterized as local, even more than the 2005 select link analysis showed in **Figure 13**. Increases in demand (percentage, not total volume) from the Fearrington Village area were noted, along with traffic from NC 751.

Decreases in the percent of the total demand from Farrington Mill Road south of Jack Bennett Road were observed, indicating that over time, a majority of traffic growth on this facility will be from inside the study area.

Farrington Road Corridor Study

Figure 21

Select Link Analysis Farrington Rd.



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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Figure 22 shows the select link analysis for Farrington Mill Road south of Mt. Carmel Church Road. Like the select link analysis for Farrington Road, a shift in demand is observed when compared to the 2005 select link analysis shown in **Figure 14**, but to a lesser extent. As a percent of link volume, reduction in traffic demand from the south occurs, while traffic increases from developing areas near Fearrington Village and east of Jordan Lake. The most significant shifts in traffic are increases in demand from US 64 from the east and US 15-501 to the south.

Figure 23 shows the select link analysis for US 15-501 south of Jack Bennett Road. When compared to **Figure 15**, no major shifts in traffic demand are noted, except for a minor shift of traffic demand from Mount Gilead Church Road to southwest of the study area (Pittsboro).

Figure 24 shows the select link analysis for Jack Bennett Road west of Farrington Mill Road. When compared to **Figure 16**, no major shifts in traffic demand are noted, except for a shift of traffic demand from Big Woods Road to Farrington Mill Road to the south, and increasing traffic from developing areas east of Jordan Lake, including Western Wake County.

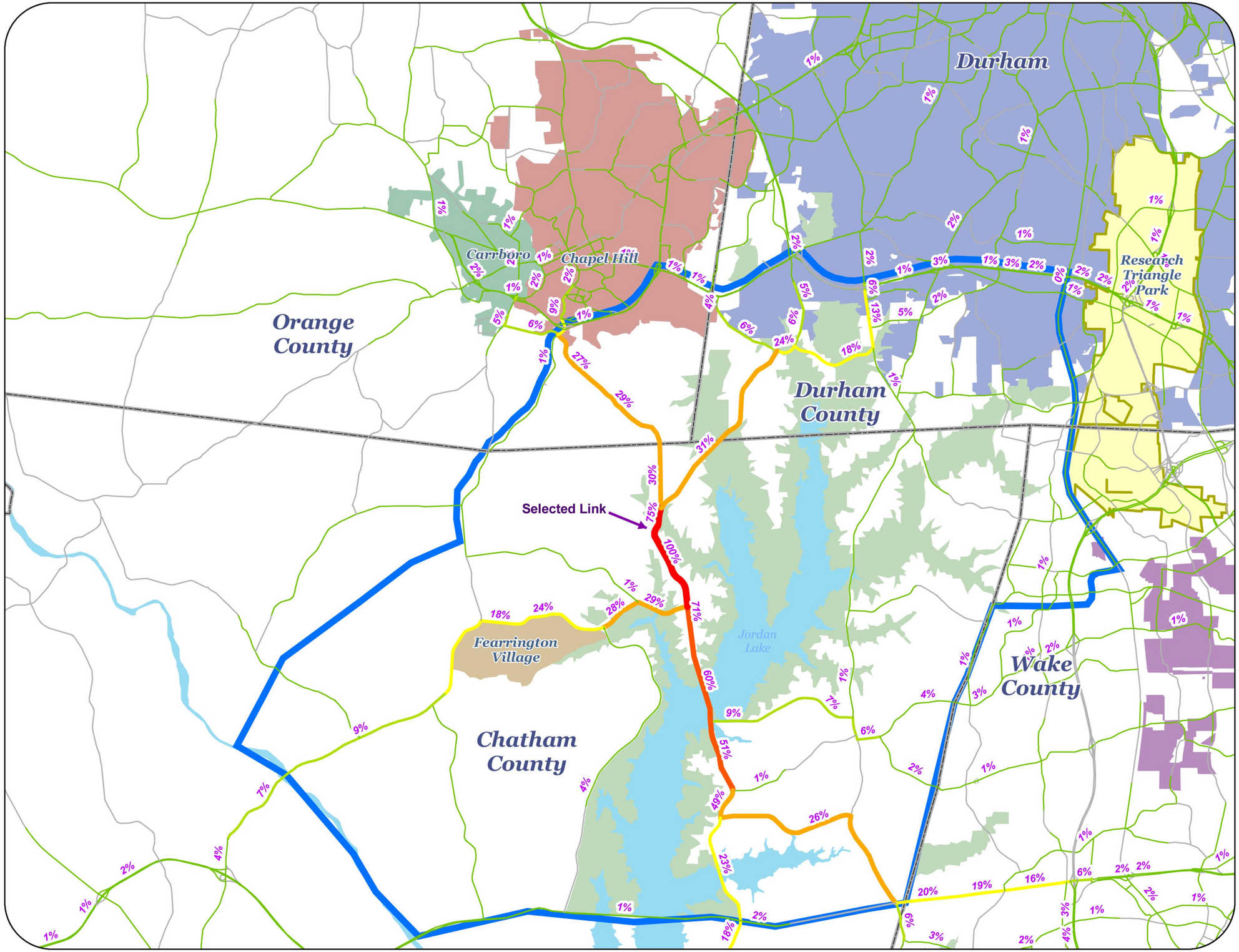
Figure 25 shows the select link analysis for Scott King Road east of Fayetteville Road. This analysis shows the most dramatic shift in traffic from 2005 (**Figure 17**). In 2005, a majority of the traffic was coming from NC 751 to the south (59%). In 2035, only 9% of traffic is predicted to come from this area. Traffic demand increases are noted on Farrington Mill Road, Stagecoach Road, NC 751 north of Stagecoach, and Fayetteville Road. The analysis further indicates that this facility will experience traffic pressure in the future due to heavy congestion on I-40, and will serve as an alternative route to Research Triangle Park and I-540.

Figure 26 shows the select link analysis for NC 55 north of Sedwick Road. When compared to **Figure 18**, little change in travel demand patterns are noted, other than the expected shift of traffic onto the new section of I-540 south of NC 55 towards Apex. No other significant changes are noted in the study area.

Farrington Road Corridor Study

Figure 22

Select Link Analysis
Farrington Mill Rd



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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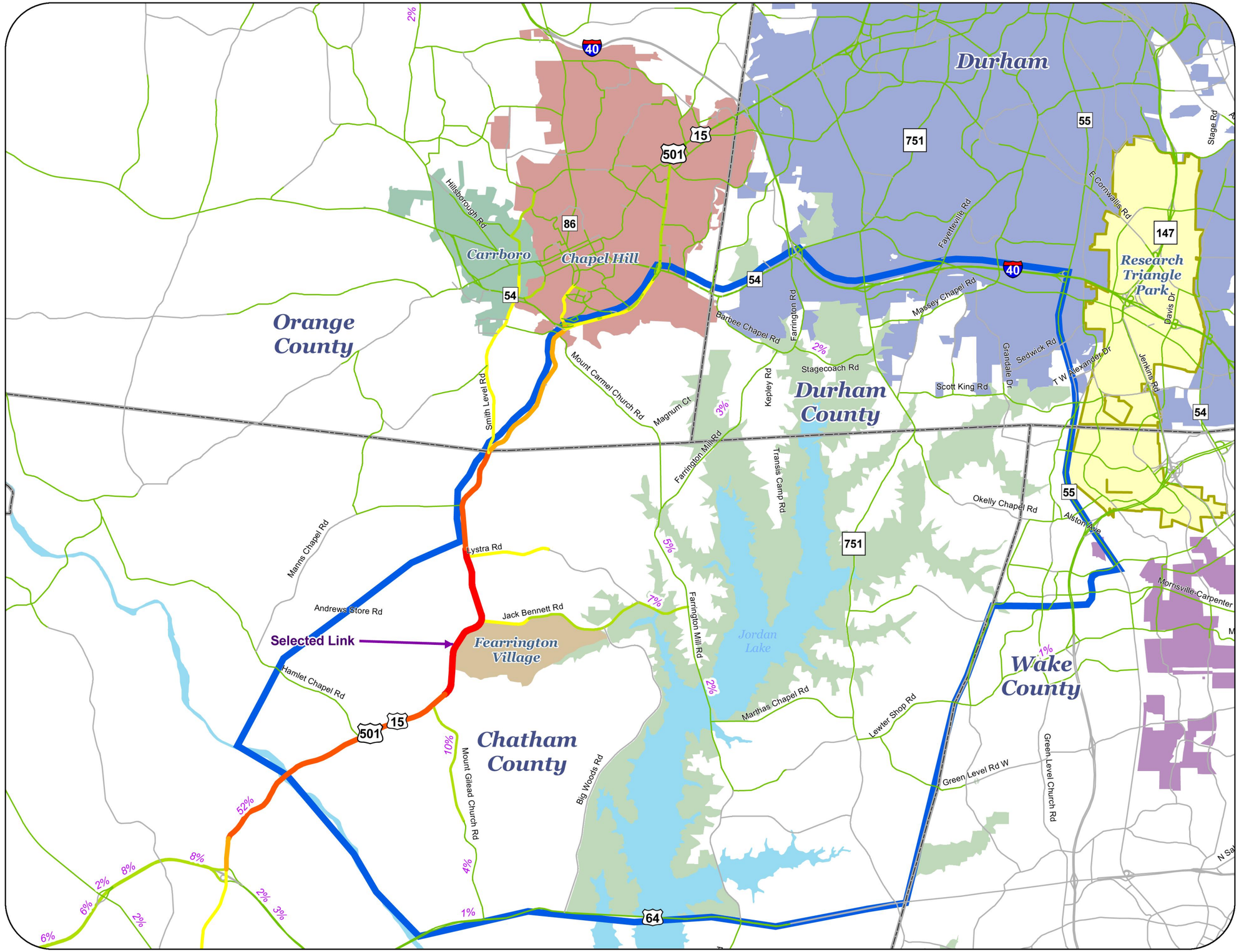
Farrington Road Corridor Study

Figure 23

Select Link Analysis
US 15/501



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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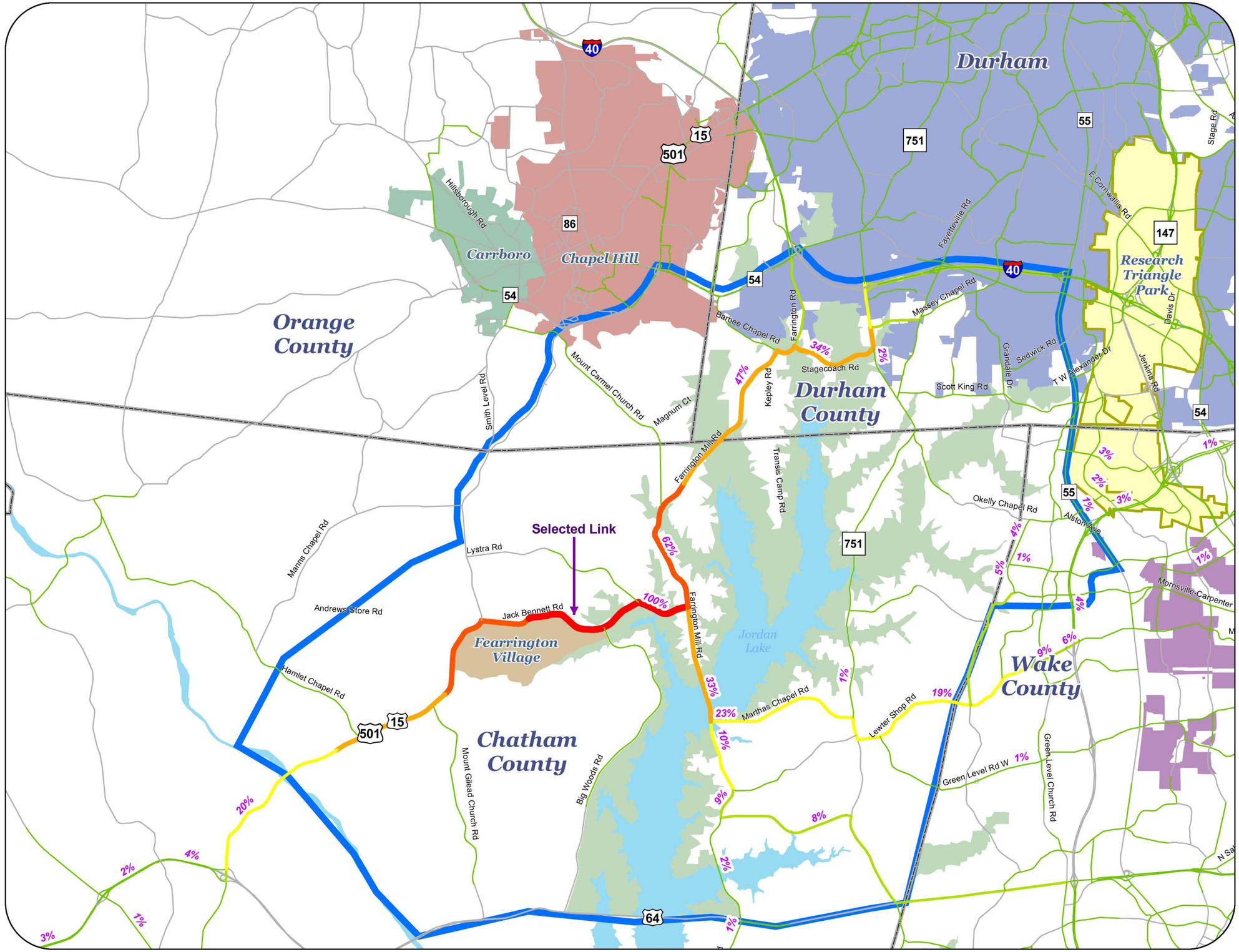
Farrington Road Corridor Study

Figure 24

Select Link Analysis
Jack Bennett Rd



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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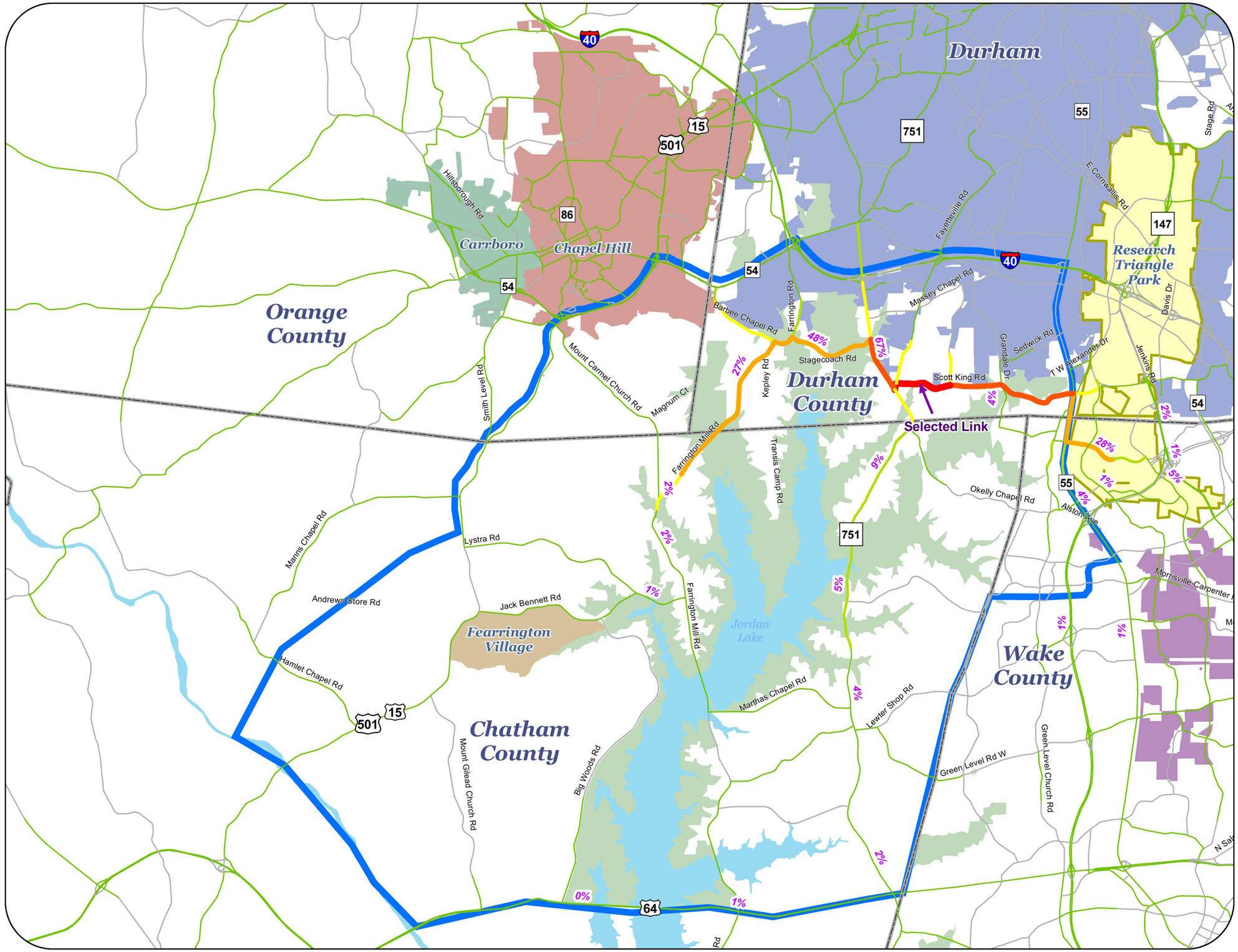
Farrington Road Corridor Study

Figure 25

Select Link Analysis
Scott King Road



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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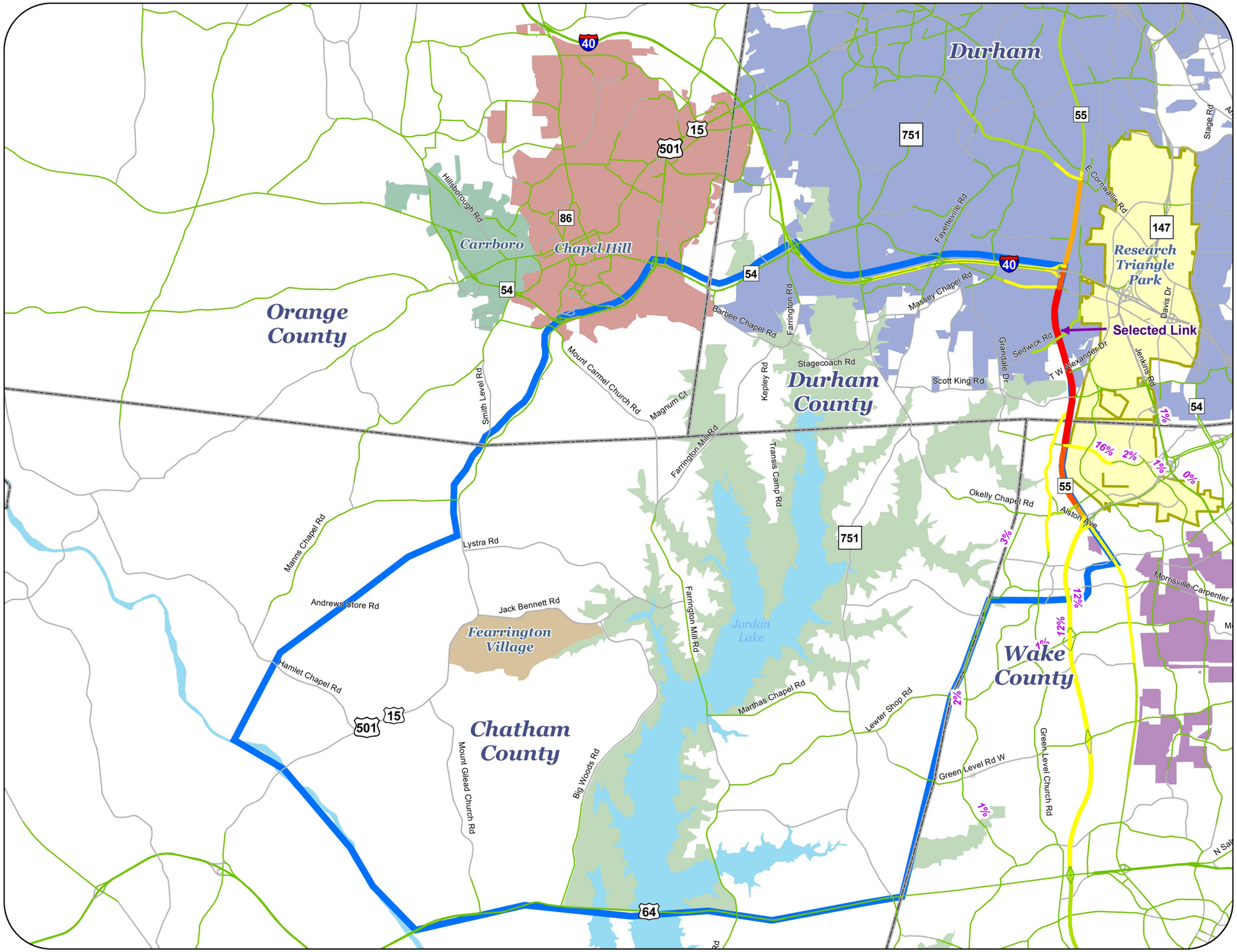
Farrington Road Corridor Study

Figure 26

Select Link Analysis
NC 55



Select Link Volumes
Percent of Trips

- 0.0
- 0.1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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6 recommendations

Based on the results of the 2035 select link analysis, it can be concluded that the majority of the traffic demand in the study area will remain local. However, there will be impacts associated with increased congestion on I-40 and shifts in regional traffic demand resulting from the extension of I-540.

District Flow Analysis

DCHC MPO provided daily and peak period origin-destination (O-D) matrices at the district level from the Triangle Regional Model (TRM). For the Triangle Model, the region is divided into 21 districts representing different parts of the area. For the Farrington Road analysis, these 21 TRM districts were grouped into 14 super-districts. O-D data from the Triangle Regional Model were aggregated to these super-districts, and are presented in **Table 11**.

Table 11 shows that the majority of trips to and from Chatham County are internal (63%). Trips to the Chapel Hill/Carrboro area are also prominent (14%), and are predicted to use the US 15-501 corridor. Trips to Western Wake (Cary/Apex) represent 8% of trips, and are expected to use the US 64 corridor for access into those areas. Southwest Durham County and RTP make up 5% and 2% of the trips, respectively (approximately 7% or 12,400 trips combined). These trips are the most likely to use the Farrington Road Corridor to avoid future congestion on US 15-501, US 64, and I-40.

Table 11. Triangle Model District Flows to and from Chatham County

Super-District	Trips to/From Chatham County (2035)	% of Total (2035)	% of Total (2005)
Chatham County	389,545	72%	63%
Chapel Hill/Carrboro Area	32,185	6%	14%
West Wake (Cary/Apex)	50,009	9%	8%
Southwest Durham County	19,208	4%	5%
South Wake (Holly Springs/Fuquay Varina)	18,283	3%	3%
Research Triangle Park	10,697	2%	2%
Central Durham	5,235	1%	1%
Raleigh (Inside the Beltine)	3,030	1%	1%
Northern Durham /Durham County	3,461	1%	1%
North/Eastern Wake County	2,268	0%	1%
Southwest Orange County	2,606	0%	1%
Northern Orange County	2,121	0%	0%
Johnston/Harnett County	3,092	1%	0%
Granville/Franklin County	144	0%	0%
Total	**541,884**	**100%**	**100%**

These district flows were added to the Triangle Model to create a thematic map representing "travel desire lines". These graphical district flows can be seen in **Figure 27**.

Future Traffic and Travel Conditions

Future Year (2035) traffic conditions were analyzed based on the results of the Triangle Regional Model and other available data developed during this study. The 2035 TRM was run using updated socio-economic data (residential and employment) based on future land use scenarios (described in the Scenario Planning chapter of this document). The resulting traffic volumes were used to identify future deficiencies (corridor and intersection level) based on volume-to-capacity (V/C) ratios for the study area corridors. Corridor and intersection traffic forecasts were prepared based on the output of the model, and were refined based on review of 2007 traffic count data and the results of the 2005 model.

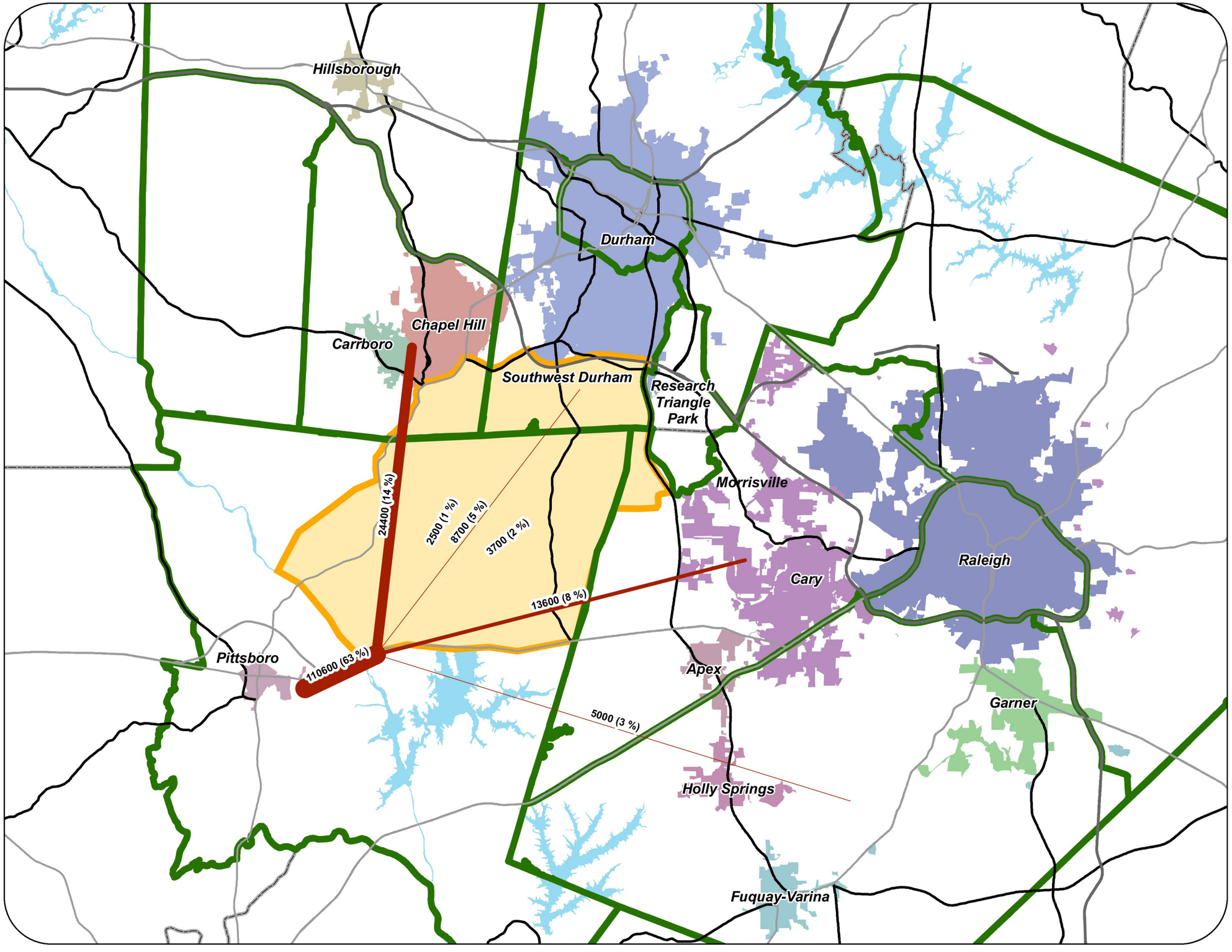
Figures 28 and 29 show the 2005 and 2035 Model Volumes, respectively. These figures show that many facilities within the study area experience significant traffic increases, including NC 751, Farrington Mill Road, Farrington Road, Stagecoach Road, NC 55, and US 15-501. Many of these roads are two-lane facilities with no current plans or funding for improvements.

Farrington Road Corridor Study

Figure 27

2035 District Flows into Chatham County

Triangle Regional Model Origin-Destination Data



District Flows
Total Trips (and % of Trips)

- 5000 - 10000
- 10000 - 15000
- 15000 - 20000
- 20000 - 30000
- 30000 - 40000
- 40000 - 50000
- > 50000
- Interstates
- US Highways
- State Highways
- TRM Super-Districts
- Counties
- Study Area
- Lakes

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N W E S

0 1 2 4 6 8 Miles

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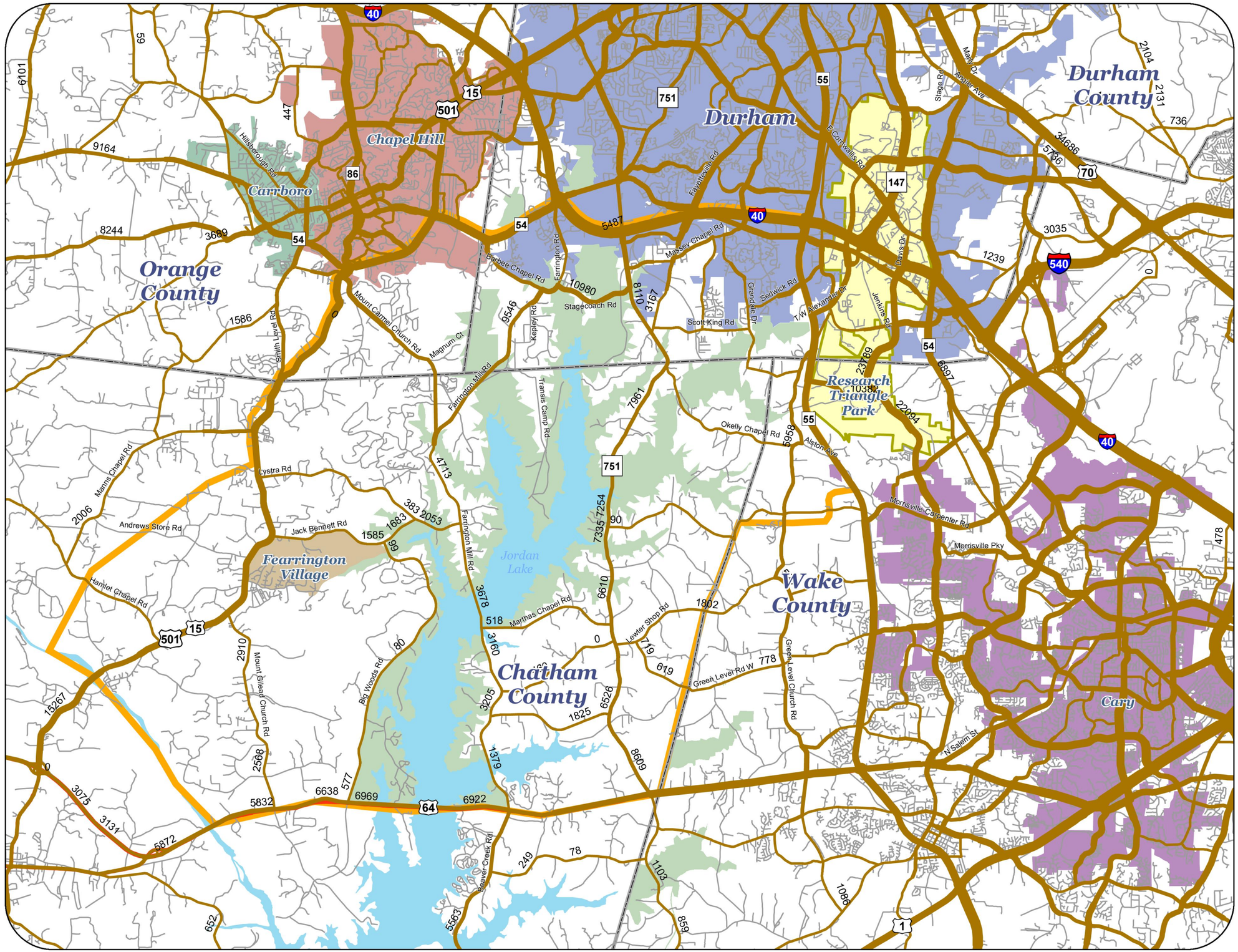
Farrington Road Corridor Study

Figure 28

2005 Volumes



2005 Volumes

- < 5000
- 5001 - 10000
- 10001 - 15000
- 15001 - 20000
- 20001 - 30000
- 30001 - 40000
- > 40000
- Interstates
- US Highways
- State Highways
- State Roads
- Counties
- Study Area
- Research Triangle Park
- Lakes
- Durham
- Chapel Hill
- Fearrington Village
- Cary
- Carrboro
- Corps of Engineers Land

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N W E S

0 0.5 1 2 3 Miles

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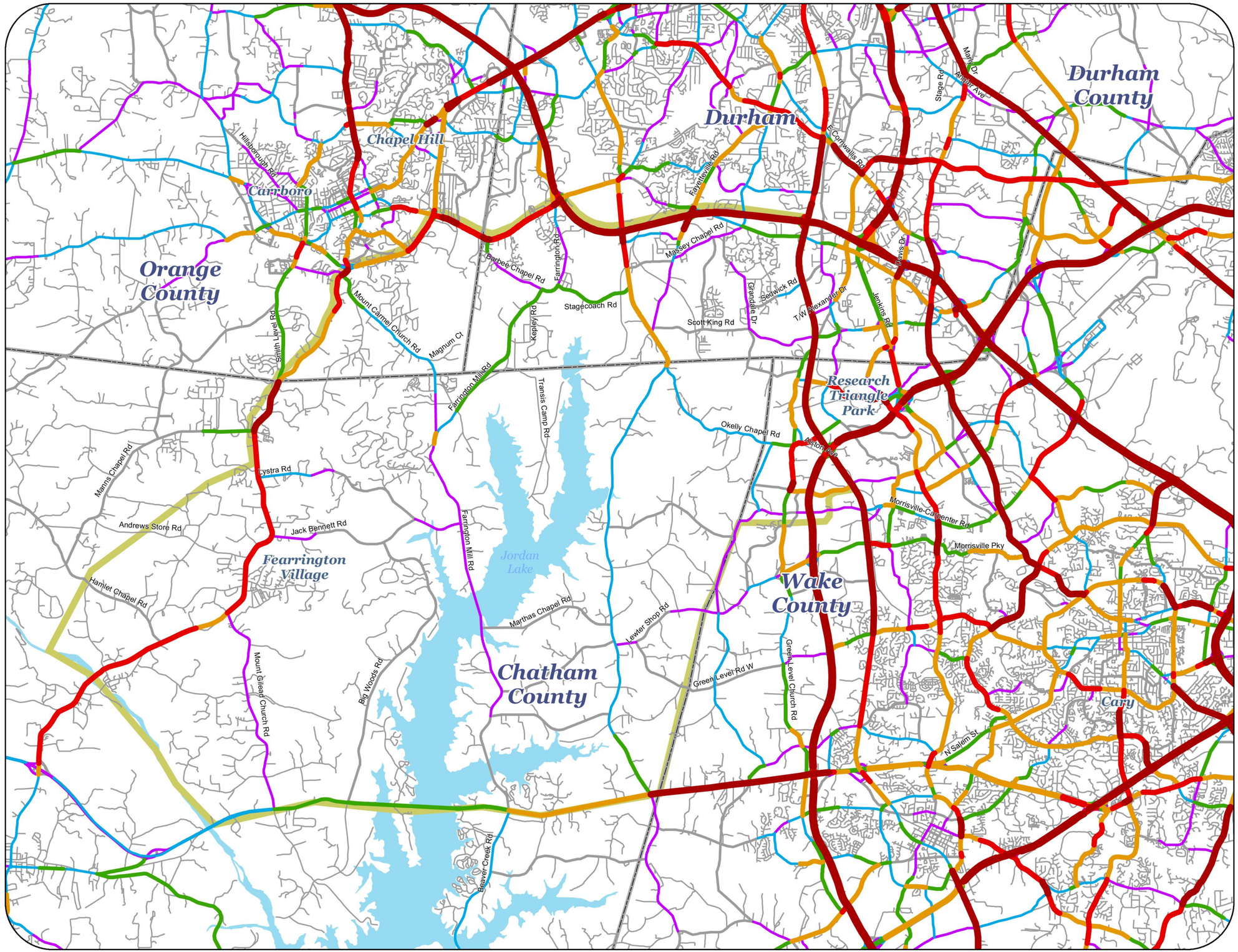
Figure 29

2035 Volumes



2035 Daily Traffic Volumes

- < 5000
- 5000 - 10000
- 10000 - 15000
- 15000 - 20000
- 20000 - 30000
- 30000 - 40000
- > 40000
- State Roads
- Counties
- Study Area
- Lakes

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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Figure 30 shows growth between 2005 and 2035 in the study area as an average annual growth rate. The more established areas such as Durham, Chapel Hill, and Cary experience low to moderate growth, between 1% and 3% per year. Annual growth rates are much higher in the rural parts of the study area, particularly in areas where new development is forecast. However, percent growth can be deceiving. The absolute growth in traffic is actually higher in the established urbanized locations and, these locations have a much higher observed and predicted future traffic volume. Nonetheless, this figure does demonstrate that development in the area, paired with external factors such as travel along the I-40 and I-540 corridors, will likely have measurable impacts on the transportation system within the study area.

Trendline Scenario - Future Corridor Level-of-Service

As in the existing conditions analysis, seventeen roadway sections were identified for corridor level-of-service (LOS) traffic analysis for projected future conditions. **Figure 1** shows the corridors that were studied as part of this analysis, as well a reference Section ID that are used throughout the report.

Corridor Level-of-Service Analysis shows that traffic growth between 2005 and 2035 in the study area will significantly impacts the transportation system. In 2005, only one of the 27 roadway sections studied performed at a LOS D, and no sections were failing (LOS E or worse). In 2035, two sections are predicted to perform at LOS D, and six sections are LOS E or worse. Two of the six failing sections are NC Routes – NC 55 and NC 751, but four of the most congested sections are two-lane rural roads: Farrington Road, Old Farrington Point Road, Barbee Chapel Road, and Stagecoach Road. Without improvements (or a change in future development patterns), these sections of road may experience heavy traffic delays on a daily basis. They are not designed to carry the forecasted traffic.

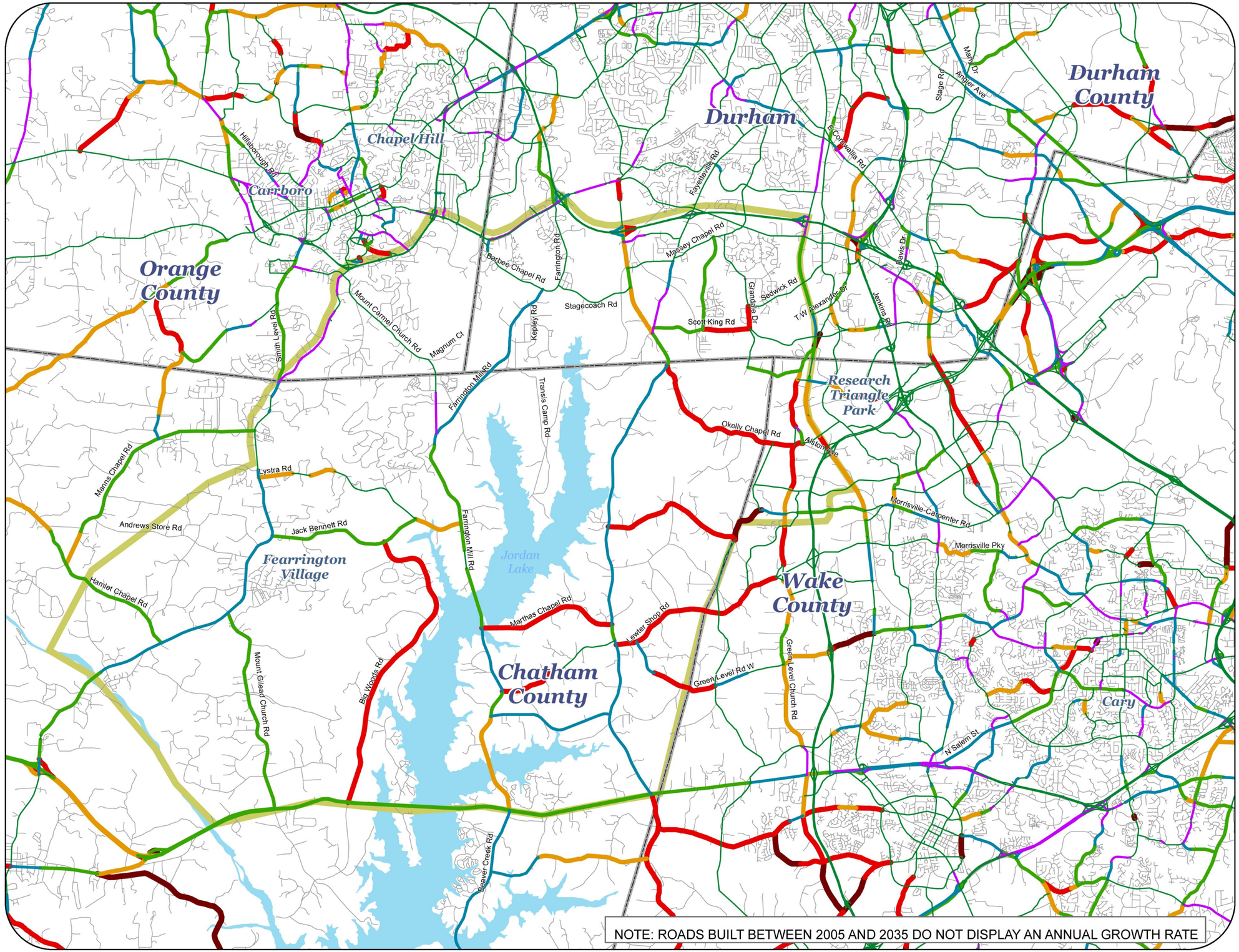
Table 12 communicates existing as well as predicted 2035 Level of Service.

Farrington Road Corridor Study

Figure 30

Annual Growth Rate, 2005 - 2035 (%)

Triangle Regional Model



2035_Model_Growth
Annual Growth Rate

- < 1%
- 1 - 2%
- 2 - 3%
- 3 - 4%
- 4 - 5%
- 5 - 7.5%
- > 7.5%
- State Roads
- Counties
- Study Area
- Lakes

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

Kimley-Horn and Associates, Inc.

6 recommendations

Table 12 - Trendline 2035 Level of Service

Section	Road	From	To	LOS D Traffic Capacity	2035 Traffic (ADT)	2035 V/C	2035 LOS	2005 LOS
11	US 15-501	Southern PAB	Jack Bennett Road	62,600	36,100	0.58	B	A
12	US 15-501	Jack Bennett Road	Northern PAB	62,600	35,600	0.57	B	A
13	Jack Bennett Rd	US 15-501	Farrington Point Road	11,900	4,900	0.41	B	A
14	Farrington Rd	Southern PAB	Lystra Road	11,800	8,800	0.75	C	B
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	10,500	9,700	**0.92**	**D**	B
16	Old Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	9,400	16,600	**1.77**	**F**	B
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	12,400	10,900	**0.88**	**D**	B
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	9,500	11,300	**1.19**	**F**	B
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	15,300	8,200	0.54	B	B
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	15,300	19,800	**1.29**	**F**	B
21	Stagecoach Rd	Farrington Road	NC 751	9,500	15,600	**1.64**	**F**	C
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	62600	22,800	0.36	B	C
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	11,800	17,400	**1.48**	**F**	**D**
24	Scott King Road	NC 751	Grandale Drive	9,500	4,000	0.42	B	A
25	Grandale Dr	Scott King Road	Sedwick Road	9,500	5,500	0.58	B	B
26	Sedwick Rd	Grandale Drive	NC 55	12,500	5,800	0.46	B	B
27	NC 55	Sedwick Road	Alexander Drive	39,700	44,800	**1.13**	**E**	B

TWLTL = Two-Way Left Turn Lane

Future Intersection Level-of-Service (LOS) Analysis

For the future year intersection LOS analysis, the same nine intersections that were analyzed in the existing conditions section were used. For each of these intersections, a set of 2035 turning-movement projections was prepared using existing volumes and trend growth rates. These forecasted traffic volumes were then analyzed using existing intersection geometry, as shown in **Figure 9**. Capacity analyses were performed for the AM and PM peak hours for projected trendline (2035) traffic conditions using *SYNCHRO* (Version 7) and SIDRA (for roundabouts) software to determine the operating characteristics of the adjacent road network.

Capacity analyses were performed for the existing (2007) traffic condition for the following intersections:

- US 15-501 at Jack Bennett Road
- Farrington Point Road at Lystra Road
- Farrington Road and Stagecoach Road at Mt. Carmel Road

- Farrington Mill Road/Farrington Road at Barbee Chapel Road
- Hope Valley Road (NC 751) at Fayetteville Road
- Stagecoach Road at Hope Valley Road (NC 751)
- Farrington Road at Stagecoach Road
- NC 55 at T.W. Alexander Drive
- NC 55 at Sedwick Road.

For intersection analysis, capacity is combined with Level-of-Service (LOS) in a relationship table to describe the operating characteristics of a road segment or intersection. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation. For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by *SYNCHRO* Version 7 or computable using methodology published in the *Highway Capacity Manual.*

The recommended improvements evaluated in **Table 13** are listed following the table. These improvements are further delineated into short-term and long-term improvements in **Section 4**. **Table 13** summarizes the LOS and delay (seconds per vehicle) for all of the study intersections for the existing traffic conditions.

Table 13. Level of Service Summary

Condition	AM Peak-Hour LOS (Delay)	PM Peak-Hour LOS (Delay)
US 15-501 and Jack Bennet Road - (Signalized)		
Existing (2007) Traffic	A (9.0)	B (10.1)
Projected (2035) Traffic	B (13.5)	B (16.1)
Projected (2035) Traffic with Improvements	B (13.5)	B (16.1)
Farrington Point Road and Lystra Road - (Signalized)		
Existing (2007) Traffic	C (20.6)	B (14.3)
Projected (2035) Traffic	E (78.7)	E (58.7)
Projected (2035) Traffic with Improvements	D (40.1)	C (33.4)
Projected (2035) Traffic with Improvements -*Roundabout*	B (19.0)	B (12.5)
Farrington Point Road/Old Farrington Point Road and Mt. Carmel Road -(Unsignalized)		
Existing (2007) Traffic	Short delays for minor street approach	Moderate delays for minor street approach
Projected (2035) Traffic	Long delays for minor street approach	Long delays for minor street approach
Projected (2035) Traffic with Improvements -*Signalized*	B (15.6)	C (21.8)
Projected (2035) Traffic with Improvements -*Roundabout*	B (12.1)	B (11.9)
Farrington Mill Road/Farrington Road and Barbee-Chapel Road - (Unsignalized)		
Existing (2007) Traffic	Moderate delays for minor street approach	Long delays for minor street approach
Projected (2035) Traffic	Long delays for minor street approach	Long delays for minor street approach
Projected (2035) Traffic with Improvements - *Signalized*	B (17.0)	D (37.8)
Projected (2035) Traffic with Improvements - *Roundabout*	A (8.1)	A (9.9)
Farrington Road and Stagecoach Road - (Unsignalized)		
Existing (2007) Traffic	Long delays for minor street approach	Long delays for minor street approach
Projected (2035) Traffic	Long delays for minor street approach	Long delays for minor street approach
Projected (2035) Traffic with Improvements – *Signalized*	C (20.4)	B (17.4)
Projected (2035) Traffic with Improvements - *Roundabout*	A (9.4)	A (9.1)
Stagecoach Road and Hope Valley Road (NC 751) - (Signalized)		
Existing (2007) Traffic	D (43.0)	B (19.8)
Projected (2035) Traffic	F (370.0)	F (287.5)
Projected (2035) Traffic with Improvements	C (21.8)	C (23.8)
Hope Valley Road (NC 751) and Fayetteville Road - (Signalized)		
Existing (2007) Traffic	B (10.7)	C (21.4)
Projected (2035) Traffic	E (71.8)	F (136.1)
Projected (2035) Traffic with Improvements	B (18.7)	C (21.8)
NC 55 and Sedwick Road - (Signalized)		
Existing (2007) Traffic	B (19.6)	C (29.8)
Projected (2035) Traffic	C (25.2)	D (39.4)
Projected (2035) Traffic with Improvements	C (25.2)	D (39.4)
NC 55 and T.W. Alexander Drive – (Signalized)		
Existing (2007) Traffic	C (24.3)	C (24.5)
Projected (2035) Traffic	D (47.0)	D (26.1)
Projected (2035) Traffic with Improvements	B (16.1)	C (26.1)

6 recommendations

The following transportation recommendations were developed based on the established vision and guiding principles, results from the Triangle Regional Model, thorough consideration of existing and future land uses, and basic transportation planning principles. The structure of the recommendations does not require that all improvements be completed in unison. This structure allows flexibility to encourage cooperation and partnership with the development community to implement the vision of the plan in several phases as development occurs and funding sources become available.

The recommendations are broken down into roadway recommendations and intersection improvement recommendations. **Figure 31** illustrates the proposed recommendations.

Roadway Recommendations

US 15-501 and Jack Bennett Road

- Lengthen the existing westbound left-turn lane on Jack Bennett Road to provide 250 feet of full-width storage.

Old Farrington Point Road and Lystra Road

- Construct an additional eastbound left-turn lane on Lystra Road with 425 feet of full-width storage.
- Construct an exclusive southbound right-turn lane on Old Farrington Point Road with 300 feet of full-width storage.
- Consider conversion of traffic signal to a roundabout configuration.

Farrington Point Road/Old Farrington Point Road and Mt. Carmel Road

- Construct an exclusive westbound right-turn turn lane on Farrington Point Road with 100 feet of full-width storage.
- Construct an exclusive northbound right-turn lane on Old Farrington Point Road with 225 feet of full-width storage.
- Construct an exclusive southbound left-turn turn lane on Mt. Carmel Road with 125 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

Farrington Mill Road/Farrington Point Road and Barbee-Chapel Road

- Construct an exclusive eastbound right-turn turn lane on Barbee-Chapel Road with 125 feet of full-width storage.
- Construct an exclusive westbound left-turn lane on Farrington Point Road with 700 feet of full-width storage.
- Construct an exclusive northbound left-turn lane on Farrington Point Road to provide 225 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

Farrington Road and Stagecoach Road

- Construct an exclusive northbound right-turn turn lane on Farrington Road with 200 feet of full-width storage.
- Construct an exclusive southbound left-turn lane on Farrington Road with 100 feet of full-width storage.
- Construct an exclusive westbound left-turn lane on Stagecoach Road with 100 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

Stagecoach Road and Hope Valley Road (751)

- Construct an additional northbound and southbound through lane on Hope Valley Road.
- Construct an additional eastbound left-turn lane on Stagecoach Road with 250 feet of full-width storage.
- Construct an exclusive northbound left-turn lane on Hope Valley Road with 400 feet of full-width storage.
- Construct an exclusive southbound right-turn lane on Hope Valley Road with 200 feet of full-width storage.

Hope Valley Road (751) and Fayetteville Road

- Construct an additional northbound and southbound through lane on Hope Valley Road.
- Lengthen the existing northbound right-turn lane on Hope Valley Road to provide 350 feet of full-width storage.
- Construct an additional westbound left-turn lane Fayetteville Road with 100 feet of full-width storage

- Lengthen the existing westbound right-turn lane on Fayetteville Road to provide 175 feet of full-width storage.

NC 55 and T.W. Alexander Drive

- Provide a free flow northbound right-turn lane.
- Lengthen the existing westbound right-turn lane on T.W. Alexander Drive to provide 400 feet of full-width storage.

Intersection Improvement Recommendations

The following improvements are recommended for the study intersections to accommodate projected traffic volumes in 2035. They are broken down into short and long term lists in order to provide guidance on implementation phasing:

Short-Term Improvements

US 15/501 and Jack Bennett Road

- Lengthen the existing westbound left-turn lane on Jack Bennett Road to provide 250 feet of full-width storage.

Old Farrington Point Road and Lystra Road

- Construct an additional eastbound left-turn lane on Lystra Road with 425 feet of full-width storage.

Farrington Road and Stagecoach Road

- Construct an exclusive northbound right-turn turn lane on Farrington Road with 200 feet of full-width storage.

NC 751 Hope Valley Road and Stagecoach Road

- Construct an additional eastbound left-turn lane on Stagecoach Road with 250 feet of full-width storage.

NC 55 and T.W. Alexander Drive

- Lengthen the existing westbound right-turn lane on T.W. Alexander Drive to provide 400 feet of full-width storage.

Long-Term Improvements

Old Farrington Point Road and Lystra Road

- Construct an exclusive southbound right-turn lane on Old Farrington Point Road with 300 feet of full-width storage.
- Consider conversion of traffic signal to a roundabout configuration.

Farrington Point Road/Old Farrington Point Road and Mt. Carmel Road

- Construct an exclusive westbound right-turn turn lane on Farrington Point Road with 100 feet of full-width storage.
- Construct an exclusive northbound right-turn lane on Old Farrington Point Road with 225 feet of full-width storage.
- Construct an exclusive southbound left-turn turn lane on Mt. Carmel Road with 125 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

Farrington Mill Road/Farrington Point Road and Barbee-Chapel Road

- Construct an exclusive eastbound right-turn turn lane on Barbee-Chapel Road with 125 feet of full-width storage.
- Construct an exclusive westbound left-turn lane on Farrington Point Road with 700 feet of full-width storage.
- Construct an exclusive northbound left-turn lane on Farrington Point Road to provide 225 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

Farrington Road and Stagecoach Road

- Construct an exclusive southbound left-turn lane on Farrington Road with 100 feet of full-width storage.
- Construct an exclusive westbound left-turn lane on Stagecoach Road with 100 feet of full-width storage.
- Install a roundabout or traffic signal when warranted.

NC 751 Hope Valley Road and Stagecoach Road

- Construct an additional northbound and southbound through lane on Hope Valley Road.

- Construct an exclusive northbound left-turn lane on Hope Valley Road with 400 feet of full-width storage.
- Construct an exclusive southbound right-turn lane on Hope Valley Road with 200 feet of full-width storage.

NC 55 and T.W. Alexander Drive

- Provide a free flow northbound right-turn lane.

NC 751 Hope Valley Road and Fayetteville Road

- Construct an additional northbound and southbound through lane on Hope Valley Road.
- Lengthen the existing northbound right-turn lane on Hope Valley Road to provide 350 feet of full-width storage.
- Construct an additional westbound left-turn lane Fayetteville Road with 100 feet of full-width storage
- Lengthen the existing westbound right-turn lane on Fayetteville Road to provide 175 feet of full-width storage.

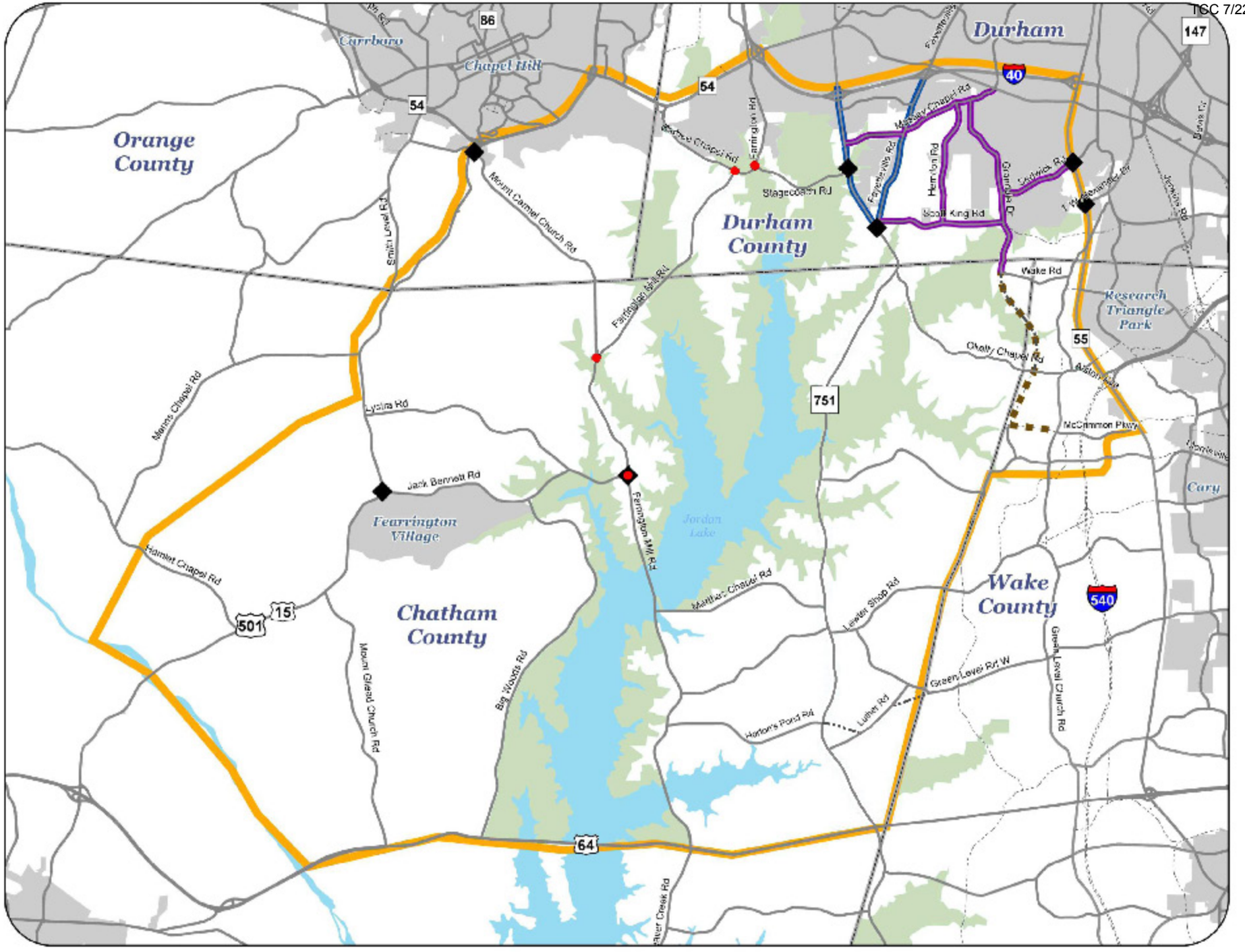
Land Use Recommendations

The scenario planning analysis confirms that reorganization of land use patterns and/or development densities or intensities throughout the study area into a more compact, nodal development pattern significantly improves the efficiency of the transportation system, while preserving unspoiled natural areas immediately surrounding new town centers. Successful implementation of a compact, nodal development pattern will require the strengthening of some development policies and/or land development controls administered in the study area. Purposeful coordination among private landowners, officials for the various local governments, the DCHC MPO, and the North Carolina Department of Transportation to combine land use and transportation planning processes traditionally completed in isolation will ensure a more efficient and fiscally responsible regional transportation system.

Cities and counties in the study area should consider strengthening rules, policies, and incentives for promoting compact development patterns in locally-adopted plans and ordinances to implement a more livable transportation system.

Farrington Road Corridor Study

Figure 31



Recommendations

- Roundabout Conversion
- Intersection Improvement
- Access Management
- Operational Management
- New Roadway
- New Roads
- Counties
- Study Area
- Municipalities
- Lakes
- Corps of Engineers Land

Recommended Transportation Improvements

November 25, 2008

0 0.5 1 2 Miles

Kimley-Horn and Associates, Inc.

7

appendix

Farrington Road Corridor Study
Land Use Scenario Planning Analysis
Generalized Development Characteristics Table

Generalized Land Use Category	Site Efficiency Factor	Average Res. Density	Floor Area Ratio	Employee Space Ratio
Agriculture	-	-	-	-
Civic / Institutional	85%	-	0.45	5.0 / 1,000 s.f.
Commercial	80%	-	0.25	4.5 / 1,000 s.f
General Office	80%	-	0.35	4.0 / 1,000 s.f.
High-Density Residential	70%	12 du / ac	-	-
Low-Density Residential	70%	3 du / ac	-	-
Light Industrial	80%	-	0.15	2.5 / 1,000 s.f.
Medium-Density Residential	70%	5 du / ac	-	-
Conservation	-	-	-	-
Parks & Recreation	-	-	-	-
Rural Residential	90%	0.2 du / ac	-	-
Compact Dev. Center	70%	8 du / ac	0.50	4.5 / 1,000 s.f. (com) 4.0 / 1,000 s.f. (off)

Note: land use categories and associated development controls were normalized among the various political jurisdictions represented in the study area.

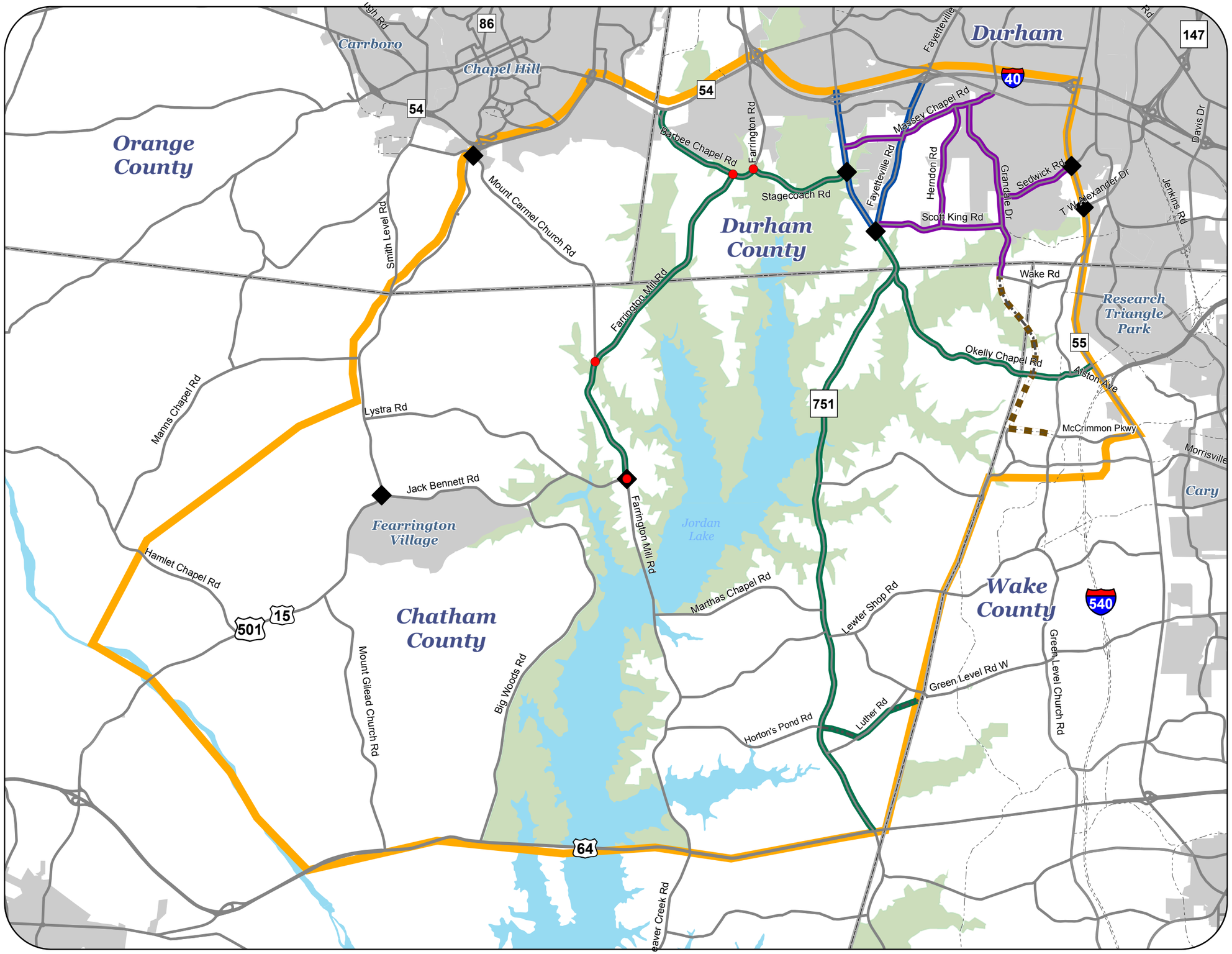
Farrington Road Corridor Study
Land Use Scenario Planning Analysis
Desirability Factor Weightings Table

Desirability Factor	Relationship to a Parcel	Weighting Factor (0 - 10)
Proximity to Open Space	Positive	2
Proximity to Existing Urban Areas	Positive	8
Proximity to Major Intersections	Positive	6
Proximity to Regional Activity Center	Positive	6
Proximity to Community Development Nodes	Positive	8
Access to Water / Sewer Service	Positive	10

Farrington Road Corridor Study

Figure 3

Recommended Transportation Improvements



Recommendations

- Roundabout Conversion
- Intersection Improvement
- Widen 1 Lane Per Direction
- Access Management
- Operational Management
- New Roadway
- New Roads
- Counties
- Study Area
- Municipalities
- Lakes
- Corps of Engineers Land

April 22, 2008

N W E S

0 0.5 1 2 Miles

Kimley-Horn and Associates, Inc.

DRAFT

MEMORANDUM

To: Transportation Advisory Committee (TAC)
DCHC MPO

From: DCHC MPO Lead Planning Agency

Date: June 10, 2009

Subject: **Lead Planning Agency (LPA) Staff Report**

This memorandum provides a summary status of tasks for projects in the FY 2008-2009 Unified Planning Work Program.

- ✓ Indicates that task is complete.
- • Indicates that task is ongoing or not complete.

2008-09 Unified Planning Work Program (UPWP) – Projects

Long Range Transportation Plan (LRTP) / Comprehensive Transportation Plan (CTP) Update

- ✓ Draft schedule – August 2006
- ✓ Release SE Data for public comment – January 2007
- ✓ Release Goals and Objectives for public comment – July 2007
- ✓ TAC approve SE Data – September 2007
- ✓ Goals and Objectives – TAC hold public hearing, September 2007, and approve, October 2007.
- ✓ TAC approve Targets – February 2008
- ✓ TAC review Deficiency Analysis – March 2008
- ✓ TAC review Land Use Scenarios – May 2008
- ✓ TAC review LRTP Alternatives – August 2008
- ✓ Public Outreach for Alternative – August-September 2008
- ✓ Public Hearing on the LRTP Alternative –September 10, 2008
- ✓ Release of the Preferred Option for Public Comments and Input – October 2008.
- ✓ Public Hearing on the Preferred Option – November 12, 2008
- ✓ Approval of 2035 LRTP to be used for air quality analysis – February 2009
- ✓ Air analysis and Inter-Agency Coordination – February 2008 to March 2009
- ✓ Release of draft 2035 LRTP Conformity report – March 2009
- ✓ TAC approval of LRTP Conformity Determination – May 2009

NC 54/I-40 Corridor/Sub-Area Study

- ✓ Staff study initiation meeting
- ✓ Draft scope of services

- ✓ Agency review of scope and time
- ✓ Request for Proposal notice – October 2008
- ✓ Proposal due January 2009
- ✓ Consultant selected
- ✓ Contract negotiation underway
- ✓ Council contract approval May 18, 2009

Notice to Proceed – June 2009
Study completion – April 2010

MPO Parking Survey and Study (to be undertaken in 2009)

Parking model specification
Regional Coordination
Draft scope of services
Request for Proposal notice – July 2009
Consultant selection September/October 2009
Council contract approval November/December 2009
Project commences – January/February 2010

Commercial Vehicle/Freight Survey

- ✓ Model specification - September 2008
- ✓ RFP/Scope of services - September/October 2008
- ✓ Consultant Selection – November 2008
- ✓ Notice to Proceed/Project Kick-off – December 2008
- ✓ Field survey/data collection underway
- ✓ Consultant selected
- ✓ Notice-to-Proceed issued
- ✓ Project underway

GIS/Data Integration and Automation

- ✓ Phase I in progress
- ✓ Initial Kick of meeting and scan completed
- ✓ Initiation Workshop report completed
- ✓ Draft Requirement Assessment & Application Development Report - October 2008

GIS Warehouse Design & Implementation - underway
Functional TELUDE Development -underway
Development of Common Maps, Models & Reports - underway
TELUDE Implementation, Testing and Evaluation
TELUDE Computing Environment
Deployment, Documentation, Users Guide and Training

Land-use Model development

- ✓ Multi-year project in progress
- ✓ Review of existing data and need/requirement analysis completed
- ✓ Land use data collection completed
- ✓ Development of Model specification Completed

✓ Model architecture and design completed
Database for UrbanSim model - underway
Phase 1 model development - underway
Demographic and Economic Transition Models
Household and Job Location Choice Models
Development Models
Price Models
Accessibility and TRM Interface
Integration of Model Outputs
Training, documentation, User's manual
Final Presentation

Non-Motorized Model development

- ✓ Phase 1 completed.
- ✓ Phase 2 underway
  - Update and enhancement of Generation Choice Models
  - Revision and revalidation of Destination choice models
  - Development of improved Model Choice model
  - Prepare and implement new TransCad routines to implement new models
  - Documentation, User's manual, and training
  - Project completion date anticipated in 2010

ITS Deployment Plan

- Two Triangle regional stakeholder coordination meetings held.
- ✓ Update of ITS short range strategies for the 2007-2013 TIP.
- ✓ Update of 2007-2010 ITS project – December 2006
- ✓ Request for funding from NCDOT
- ✓ Draft scope of services and Request for Proposals.
- ✓ Consultant selection in spring of 2008
- Notice to proceed in January 2009
- Scan of Best practices
- ITS Vision and goals
- Gap Assessment
- Development of ITS Architecture
- Development of ITS Cost Estimates and Cost database
- Development of Maintenance Plan
- Development of IDAS Model
- Integration & Streamlining of ITS with Transportation Planning.
- Strategic Deployment Plan
- Project Management
- Final Reports
- Completion of Project expected in Winter of 2010.

Farrington Road/Stagecoach Road Corridor Study

- ✓ This study involved the following tasks:

1. Data collection and analysis
2. Traffic circulation plan (including a collector street system plan)
3. Sub-area modeling analysis and forecast of future demand
4. Alternative evaluation
5. Recommendation

- ✓ Kimley Horn and Associates is the consultant
- ✓ Data collection underway
- ✓ Steering Committee proposed
- ✓ Completion of study expected in January
- ✓ Integration in the 2035 LRTP
- ✓ Draft report complete
- ✓ Presentation at August TAC

MPO Collector Street Plan

- ✓ Supplemental Agreement with Kimley Horn and Associates
- ✓ Data collection underway
- ▪ Completion of study and integration with the 2035 LRTP in Spring 2009

MPO Expansion for the next LRTP Update

- ✓ Initiated dialogue with Person County, Granville County, Butner, Roxboro and Pittsboro – July 2006
- ✓ Met with governing bodies of these jurisdictions – September 2006
- MPO expansion and revision of MOU expected to be completed after the 2035 LRTP update.

Public Outreach for the East End Connector Planning and Environmental Study

- ✓ LPA working on the Public Involvement and Outreach Program for the East End Connector Planning and Environmental Study (NEPA).
- ✓ Development of mailing list database complete.
- ✓ Received project schedule and time line from NCDOT.
- ✓ Newsletter distributed May 2006
- ✓ Speakers Bureau presentations June 2006 – ongoing
- ✓ First public meeting September 26, 2006
- ✓ Second public meeting – January 30, 2007
- ✓ Alternative 3 selected as LEDPA – June 19, 2007
- ✓ Ad Hoc Committee Meetings – August 9, 2007, August 27, 2007, September 19, 2007, October 10, 2007, November 7, 2007, December 5, 2007
- ✓ Third public meeting December 10, 2007, Orange Grove Missionary Baptist Church
- Environmental Study expected completion - spring 2009

Contract Number:	C200840	**Route:**	NC-54
Physical Division:	5	**County:**	Durham
Administrative Division:	5	**TIP Number:**	R-2904, U-4026
Length:	6.363 miles	**Federal Aid Number:**	STP-54(5)
Resident Engineer:	Jeffrey D. Allen, PE	**RE Phone Number:**	(919)733-9499
Location Description:	NC-54 FROM SR-1999 IN DURHAM CO TO SR-1959 IN DURHAM CO & SR-1999 FROM SR-3014 IN WAKE CO TO NC-54 IN DURHAM CO.		
Type of Work:	WIDENING, GRADING, DRAINAGE, PAVING, SIGNALS & CULVERTS.		
Contractor Name:	C C MANGUM COMPANY LLC		
Contract Amount:	$35,467,891.08	**Cost Overrun/Underrun:**	8.65%
Availability Date:	2/5/2007	**Letting Date:**	12/19/2006
Completion Date:	11/1/2009	**Work Began:**	2/19/2007
Revised Completion Date:	11/22/2009	**Estimated Completion:**	11/1/2009
Last Estimate Thru:	6/30/2009	**Scheduled Progress:**	78.5%
Last Estimate Paid:	7/10/2009	**Actual Progress:**	82.17%

Contract Number:	C201487	**Route:**	US-15
Physical Division:	5	**County:**	Durham
Administrative Division:	5	**TIP Number:**	B-3450, U-4009, U-4012
Length:	1.769 miles	**Federal Aid Number:**	BRSTP-1116(6)
Resident Engineer:	Chad D. Hinnant	**RE Phone Number:**	(919)220-4680
Location Description:	BRIDGES OVER SANDY CRK & TRIBUTARY & APPROACHES ON SR-1116, SR-1126 NEAR US-15/501 & SR-1116, US-15/501 AT MT MORIAH RD.		
Type of Work:	GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURES.		
Contractor Name:	DLB, INC DBA DLB INC (OF VA)		
Contract Amount:	$18,810,912.36	**Cost Overrun/Underrun:**	1.76%
Availability Date:	10/1/2007	**Letting Date:**	8/21/2007
Completion Date:	8/1/2010	**Work Began:**	10/1/2007
Revised Completion Date:	8/3/2010	**Estimated Completion:**	8/3/2010
Last Estimate Thru:	6/30/2009	**Scheduled Progress:**	43.2%
Last Estimate Paid:	7/13/2009	**Actual Progress:**	42.78%

Contract Number:	C202313	**Route:**	US-501
Physical Division:	5	**County:**	Durham
Administrative Division:	5	**TIP Number:**	R-5135, U-5122, U-5124 U-5126, U-5127
Length:	16.62 miles	**Federal Aid Number:**	STM-1004(39)
Resident Engineer:	Chad D. Hinnant	**RE Phone Number:**	(919)220-4680
Location Description:	1 SECTION OF US-501 BYPASS, 1 SECTION OF NC-98 & 3 SECTIONS OF SECONDARY ROADS.		
Type of Work:	WIDENING, MILLING, RESURFACING & SHOULDER RECONSTRUCTION.		
Contractor Name:	BARNHILL CONTRACTING COMPANY		
Contract Amount:	$3,611,898.13	**Cost Overrun/Underrun:**	
Availability Date:	7/27/2009	**Letting Date:**	6/16/2009
Completion Date:	5/14/2010	**Work Began:**	
Revised Completion Date:		**Estimated Completion:**	
Last Estimate Thru:		**Scheduled Progress:**	
Last Estimate Paid:		**Actual Progress:**	

ACTIVE NCDOT PROJECTS LOCATED IN ORANGE COUNTY - DCHC MPO

County	WBS #	Route	Location Description	Amount	Status
Orange	36945	SR 1010 (Franklin St.) @ Mallette St.	Upgrade traffic signal and install pedestrian signal heads REVISION: Install mast arm	$110,000.00	Bid opening cancelled
Orange	39276 MA07120R	SR 1942 (Jones Ferry Rd.) from SR 1140 (Wilson Rd.) to Chatham Co.	Widen existing pavement to 22' with a 1' paved shoulder on each side and resurface. Finished pavement width will be 24'.	$800,000	Combine NCMA funds with resurfacing funding; Spending Authority for '09-'10
Orange	41593 U-4726xx	Union Street	Construct 750 feet of sidewalk and a crosswalk to connect Hillsborough Elementary School to SR 1156 (Nash St.)	$32,000.00	Town to include as part of STP-DA ARRA sidewalk project ; design, R/W/U underway-M.A. pending
Orange	42040	SR 1006 (Orange Grove Rd.) 0.3 mi. south of SR 1177 (Orange Grove-Calvander Rd.)	Install guardrail at the culvert	$24,000	Installation pending utility relocation; given Spending Authority '09-'10
Orange	42486	SR 1008 (Mt. Carmel Ch. Rd.) @ SR 1913 (Bennett Rd.)	Install solar powered flashers at both approaches to the intersection	$10,000	FA const. given Spending Authority '09-'10; may need electric power
Orange	42501	US 15/501/NC54 (Fordham Blvd.) at SR 1900 (Old Mason Farm Rd.)	Construct bus pulloffs on both sides	$140,000	FA const. given Spending Authority '09-'10
Orange	42502	SR 1010 (Franklin St.) between Hillsborough St. and Plant Rd.	Replace deteriorated curb and gutter at several locations on both sides	$30,000	Municipal Agreement pending
Orange	B-4218	SR 1730 (Turkey Farm Rd.)	Replace Bridge # 108 over New Hope Creek	$750,000.00	Dane Const., Inc. = 72.84% complete
Orange	B-4592	SR 1561 (Lawrence Rd.)	Replace Bridge # 64 over the Eno River	$1.6 million	Sanford Contractors, Inc. = **72.76 % complete**

ACTIVE NCDOT PROJECTS LOCATED IN ORANGE COUNTY - DCHC MPO

Orange	42170 SS-4907 T 42204.2 42204.1	SR 1710 (Old NC 10) @ NC 86	Construct a right turn lane on SR 1710 and install a traffic signal	$215,000	Design underway; minor R/W & utility relocation
Orange	42171 SS-4907 U 42205.2 42205.1	SR 1710 (Old NC 10) @ SR 1713 (Mt. Herman Church Road)	Improve sight distance on SR 1710 by lowering the crest vertical curve on the westbound approach to the intersection	$300,000	Design underway
Orange	42423.3 42423.1 SS -4907V	SR 1005 (Old Greensboro Rd.) @ SR 1951 (White Cross Rd.)	Realign intersection	$165,000	Design pending field review and survey
NCDOT PROJECTS CURRENTLY IN 12 MONTH LETTNG LIST					
County	**TIP #**	**Route**	**Location Description**	**TIP Est.**	**Est. Let Date**
Orange	B-4216	SR 1002 (St. Mary's Road)	Replacement of Bridge # 66 over Stroud's Creek	$875,000	Jan. 19, 2010
Orange	I-4716	I-40	Grind and reseal joints on I-40 from I-85 to Durham Co. (Scope may be revised)	$1.05 million	Sept. 15, 2009
Orange	**R-5178A**	**NC 57**	**Widen for two foot paved shoulders and resurface from NC 86 to SR 1544 (Pearson Road)**	**$2.0 million**	**Sept. 15, 2009**
Orange	U-0624	NC 86 (S. Columbia St.)	Corridor upgrade including Bicycle lanes from SR 1906 (Purefoy Rd.) to SR 1902 (Manning Dr.)	$4.40 million	Oct. 20, 2009
Orange	U-3100B	SR 1107 (Old Fayetteville Rd.) from NC 54 to SR 1106 (Stroud Lane)	Safety Improvements (Bicycle, Pedestrian, and Transit Accommodations)	$1.8 million	Nov. 17, 2009
Orange	U-4704	Chapel Hill-Carrboro	Computerized Traffic Signal System	$5.0 million	Sept. **15**, 2009

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Division 8 Project Report

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COUNTY	WBS #	ROUTE	DESCRIPTION	TOTAL FUNDING ALLOCATION	CONTRACT BID AMOUNT	STATUS
Chatham	B-4063 33427.3.1	NC 902	Replacement of bridge # 20 over Sandy Creek and approaches	$1,615,181.00	$1,205,102.89	Dellinger, Inc began work on 9/18/08 and is currently at 70.1% complete; Estimated completion is December 2009
Divisionwide	38913.3.1 R-4425	US 421, US 15-501, US 1	Guardrail rehabilitation to upgrade sub-standard guardrail, end treatments and bridge anchor units	$2,622,565.00	$2,280,491.45	Reynold's Fence & Guardrail began work October 27, 2008; Scheduled completion is April 24, 2009. Revised completion date is June 13, 2009. All counties complete, awaiting final inspection & punch list.
Moore		NC 22 at Moore Co. Airport	Relocation of NC 22			Project complete.
Moore & Richmond	34438.3.3 R-2502A & 2502B	US-1 From SR-1001 to North of Moore County Line	Widening to 4 Lanes, Richmond/Moore Counties	$12,832,430.43	$26,633,346.18	R.E. Goodson began work on 12/08/08 and is at 11.6% complete; Currently clearing & grubbing, relocating utilities, installing waterline; Scheduled completion is November 20, 2011
Moore	33554.3.1 B-4207	NC 22-24-27	Replacement of bridge # 43 over Mclendons Creek and approaches	$3,250,000.00	$1,797,803.68	Project was let on 5/19/09; Awarded to Dane Construction, Inc.
Lee	45039.3.ST1 R-5139 F.A. STM-0001(123)	US-1 from US-1 Bus. To SR 1423	Resurfacing, Rehabilitation	$3,000,000.00	$2,148,224.52	Project was let on 6/16/09; Awarded to S. T. Wooten Corp. **Economic Stimulus Project**
Lee	45041.3.ST1 R-5141 F.A. STM-0078(4)	NC 78 from US-1 to SR 1001	Widening to three lanes	$7,000,000.00	$1,179,044.45	Project was let on 6/16/09; Awarded to S. T. Wooten Corp. **Economic Stimulus Project**

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Moore	45040.3.ST1 R-5140 F.A. STM-0001(124)	US-1 From SR 1309 to SR 2175	Paved Shoulders, Resurfacing	$3,000,000.00	$1,383,886.65	Project was let on 6/16/09; Awarded to S. T. Wooten Corp. **Economic Stimulus Project**
Moore	45042.3.ST1 R-5142 F.A. STM-0024(37)	NC 24/27 From NC 705 to Mongomery County Line	Widening at multiple intersections, Resurfacing	$5,000,000.00		Project was let on 6/16/09; Has not been awarded yet. **Economic Stimulus Project**
Chatham	8CR.20191.11	4 sections of secondary roads	Contract resurfacing let as purchase order	$1,040,350.00		Letting scheduled for 7/7/09
Moore	8CR.20631.11	7 sections of secondary roads	Contract resurfacing let as purchase order	$1,130,150.00		Letting scheduled for 7/7/09
Lee	8CR.20531.11	3 sections of secondary roads	Contract resurfacing let as purchase order	$720,530.00		Letting scheduled for 7/21/09
Chatham	41700 SF-4908J	NC 751	Install protected permitted traffic signal and left turn lane at intersection of NC 751 and SR 1731 (O'Kelly Church Road)	PE: $10,000 ROW: $6,000		Design is complete; ROW being acquired; Anticipated letting 7/23/09; **Economic Stimulus Project**
Chatham	422221	NC 87 from south of SR 1516 to north of SR 1516	Construct eliptical roundabout near CCCC in Pittsboro	$375,000.00		Anticipated letting in December 2009; **Economic Stimulus Project**
Lee	EB-4981	Endor Iron Furnace Greenway from Kiwanis Family Park to Boone Drive	Construct Greenway	PE: $45,000		Anticipated Letting October 2009; **Economic Stimulus Project**
Lee	R-2417C	US 421/NC 87 from NC 42 to NC 87	Freeway on new location	PE: $148,257.25 ROW: $11,008,207.75		Tentative Letting December 2009; **Economic Stimulus Project**
Chatham	36268 U-4726FA	US 15-501 from Cole Park Plaza to Orange County	Install pedestrian facilities			Chatham County Municipal Agreement; Letting not scheduled; **Economic Stimulus Project**
Chatham	45067 ER-5100HA	US 15-501 from Cole Park Plaza to Orange County	Streetscaping/Landscaping			Chatham County Municipal Agreement; Letting not scheduled; **Economic Stimulus Project**

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Chatham	41848.3 SS-4908K	US 64 and SR 2229 (Treatment Plant Road)/SR 1363 (Pearlman Teague Road)	Island construction and improvements to accommodate U-turns	$19,000.00		Design is complete; ROW being acquired; Letting is not scheduled; Insufficient funds available
Lee	42112	US 1 NB & SB	Construct right turn lanes at SR 1182 (Cedar Lane) and SR 1173 (Pine Forest Road)	$140,000		Anticipated letting in May 2010
Lee	41702	SR 1001 & SR 1146	Revise existing flasher to a four way stop flasher with advance Stop Ahead flashers and stop sign flashers on Lemon Springs Road at Saint Andrews Road	PE: $2,000 ROW: $1,000 CONST: $10,000		Construction is on hold until further investigations can be completed
Moore	40539	NC 24/27 at SR 1809/SR 1814	Lower west leg of NC 24/27 to improve sight distance	$233,000.00		Has been submitted as a W project. Preliminary cost estimate complete. Preliminary plans complete. Insufficient funds available.